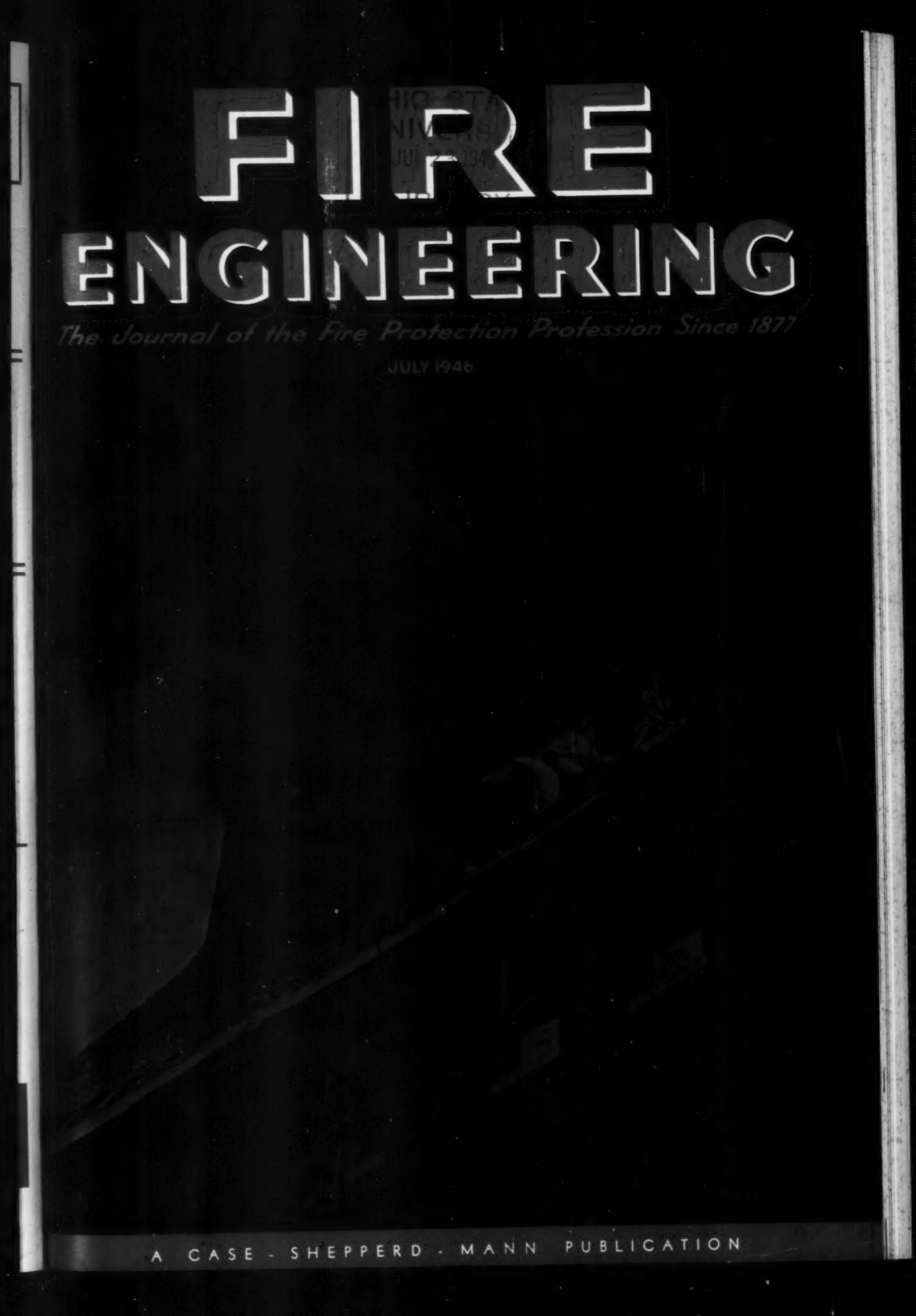
FIRE ENGINEERING

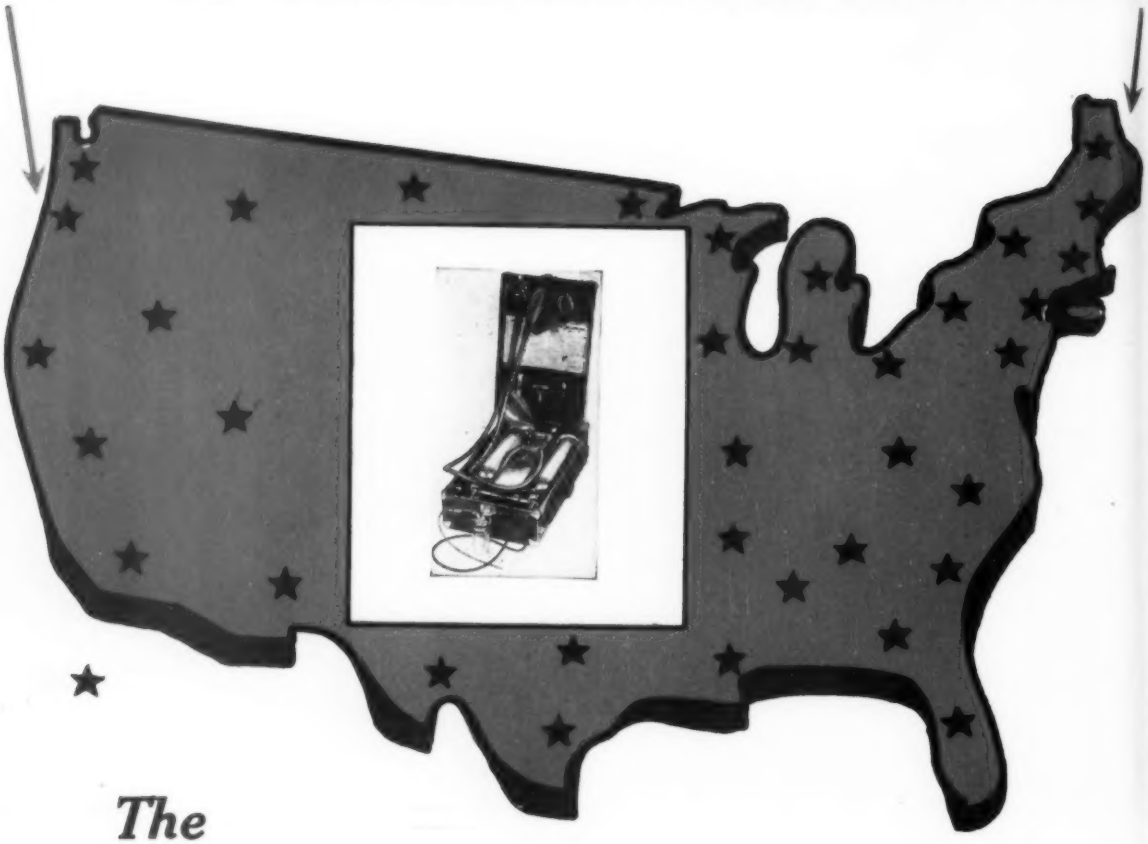
The Journal of the Fire Protection Profession Since 1877

JULY 1946



A CASE - SHEPPERD - MANN PUBLICATION

From **PORTLAND, OREGON** *to* **PORTLAND, MAINE**



The

EMERSON

RESUSCITATOR

Is giving progressive fire departments a high type of protection against asphyxial death which has made it unique in the field of American life-saving equipment.

Whether your department be large or small, you, Chief, owe it to your men and the citizens of your community to investigate the record performance of the Emerson Resuscitator.

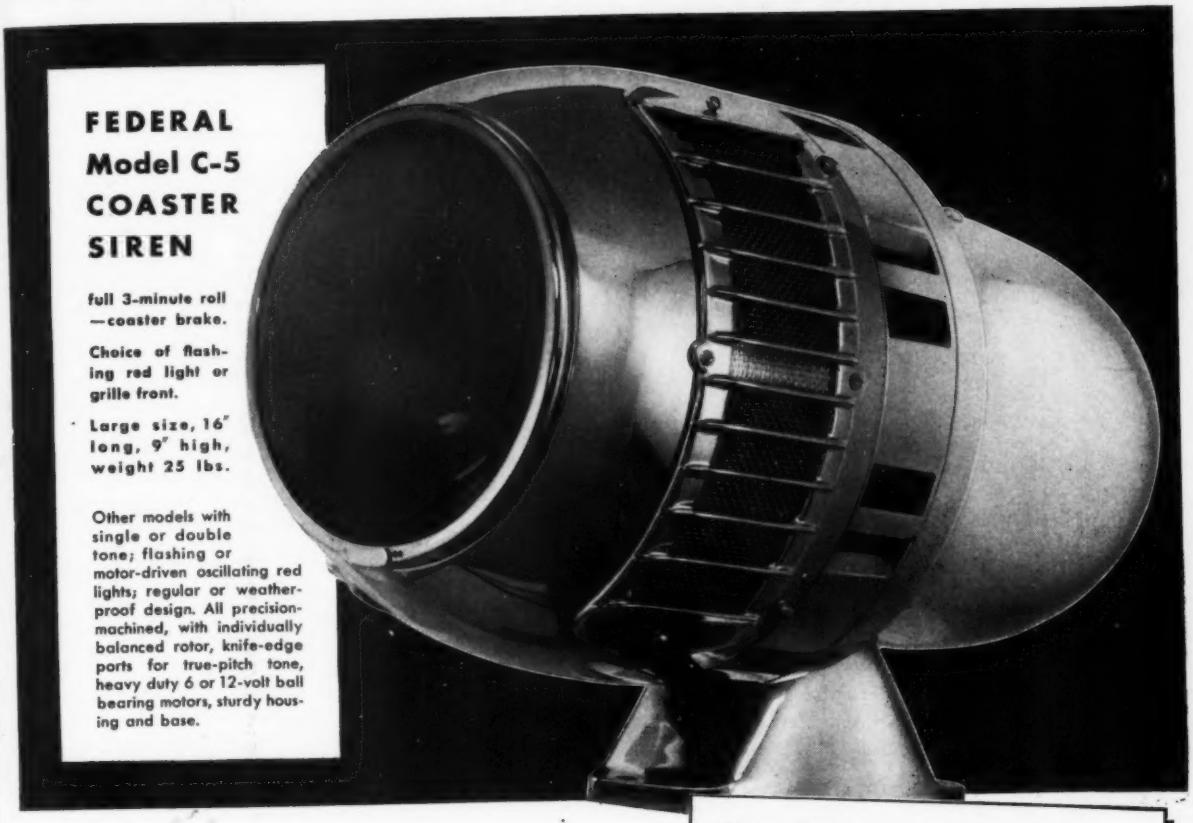
Write for literature or a demonstration.

J. H. EMERSON COMPANY

Representatives in Principal Cities

22 COTTAGE PARK AVENUE CAMBRIDGE, MASS.

Get the PROTECTION you need



FEDERAL Model C-5 COASTER SIREN

full 3-minute roll —coaster brake.

Choice of flashing red light or grille front.

Large size, 16" long, 9" high, weight 25 lbs.

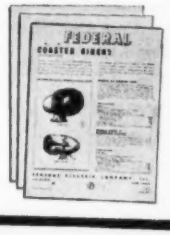
Other models with single or double tone; flashing or motor-driven oscillating red lights; regular or weatherproof design. All precision-machined, with individually balanced rotor, knife-edge ports for true-pitch tone, heavy duty 6 or 12-volt ball bearing motors, sturdy housing and base.

...On your new equipment specify this big FEDERAL COASTER SIREN

When you order your new equipment, *specify* the siren that will give you maximum protection, absolute dependability. Federal Sirens are designed scientifically to assure a powerful, penetrating tone, and are built for instant starting, dependable, long-life operation, with a minimum of maintenance. Model C-5 Coaster Siren shown above is a big, powerful siren, designed especially for emergency vehicles requiring a deep, powerful warning to assure safety to other vehicles and pedestrians. Get details and prices on this and other Federal Sirens—write for bulletins today.

How Dependability and Power are built into FEDERAL Sirens

Cast aluminum or die-cast zinc alloy rotors, accurately machined and individually balanced. Knife-edge ports assure even cut-off and true pitch for penetrating roaring tone. Thin, smooth rotor blades handle large air volume with minimum current consumption.



Get this Bulletin FREE

Details, illustrations, and prices on this and other Federal vehicle and fire alarm sirens. *Write today.*

FEDERAL ELECTRIC COMPANY, INC.

SIREN HEADQUARTERS

8702 SOUTH STATE STREET, CHICAGO 19, ILLINOIS

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

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FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

Caveat Emptor

THE Romans had a slogan! — *"Caveat Emptor"*—which might well be observed by the fire service, particularly at this time of delayed deliveries, fluctuating prices, and black markets — and other post-war reconversion headaches.

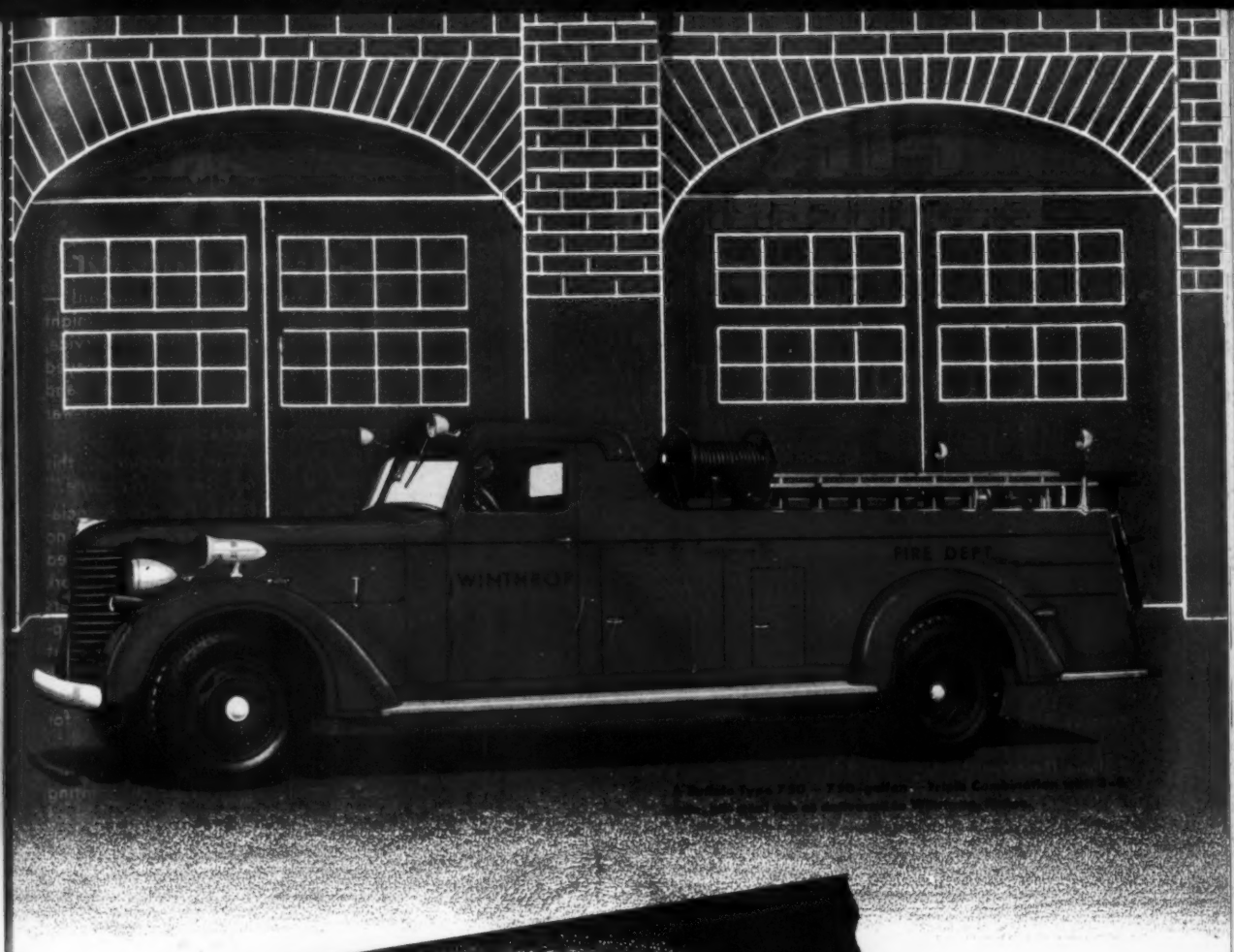
- In plain fireman's language, this means *"Let the Buyer Beware!"*
- This is what the Eastern Association of Fire Chiefs had in mind, no doubt, when it unanimously approved a resolution at its June New York convention in effect urging purchasers of fire fighting apparatus and equipment to take heed, and see that what they get measures up to the standards of quality and performance established by the fire service for such "tools of the trade."
- Right in line with the Eastern's sound resolution, it is worth pointing out that this Convention Number of FIRE ENGINEERING contains more sales announcements of leading fire equipment builders than any previous convention number in its busy life!
- For those far-sighted chiefs who may have any lingering doubts about who makes "standard" quality fire fighting equipment and where they may be found, we recommend you to the interesting and informative advertising pages of this record-breaking issue!

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price: U. S., Latin America and Canada, $2.50 a year; Foreign, $3.50; Single copies, 25c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879. ¶Contents of this issue copyrighted, 1946, by Case-Shepperd-Mann Publishing Corp. President and Advertising Director, KARL M. MANN; Vice-President and General Manager, I. HERBERT CASE; Secretary and Editorial Director, FRED SHEPPERD; Assistant Advertising Director, WALTER H. FREDRICKS; Advertising Manager, WILLIAM J. GIBSON; Circulation Manager, W. H. TOPHAM. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 6 No. Michigan Ave., Chicago 2, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; LOS ANGELES: AUGUST HAURIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U. S. A.

A CASE-SHEPPERD-MANN PUBLICATION
"Specialized Leadership"



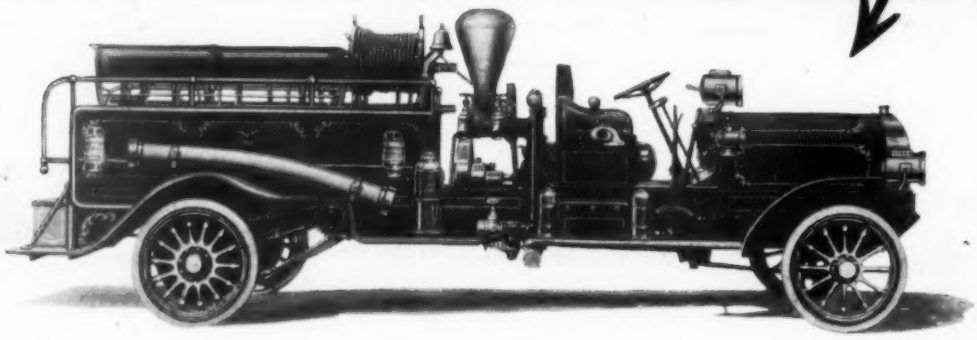
BUFFALO better-built MOTOR FIRE APPARATUS

BUFFALO FIRE APPLIANCE CORPORATION

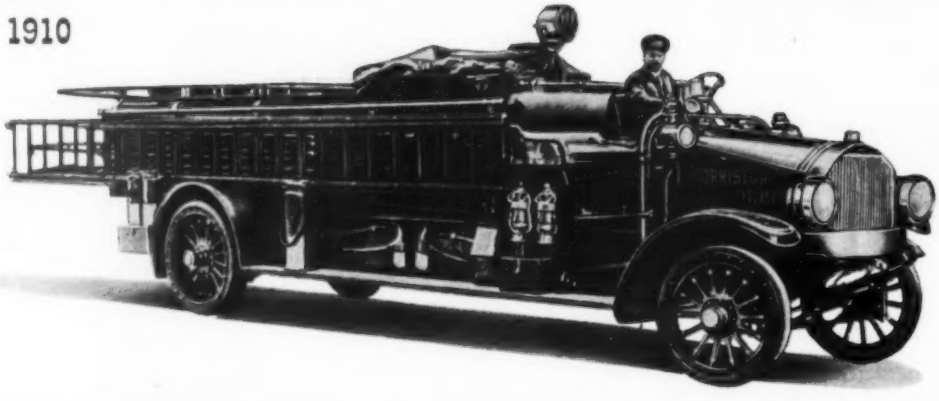
M & T BUILDING BUFFALO 2 NEW YORK

SETTING THE PACE...

FROM THEN...



1910

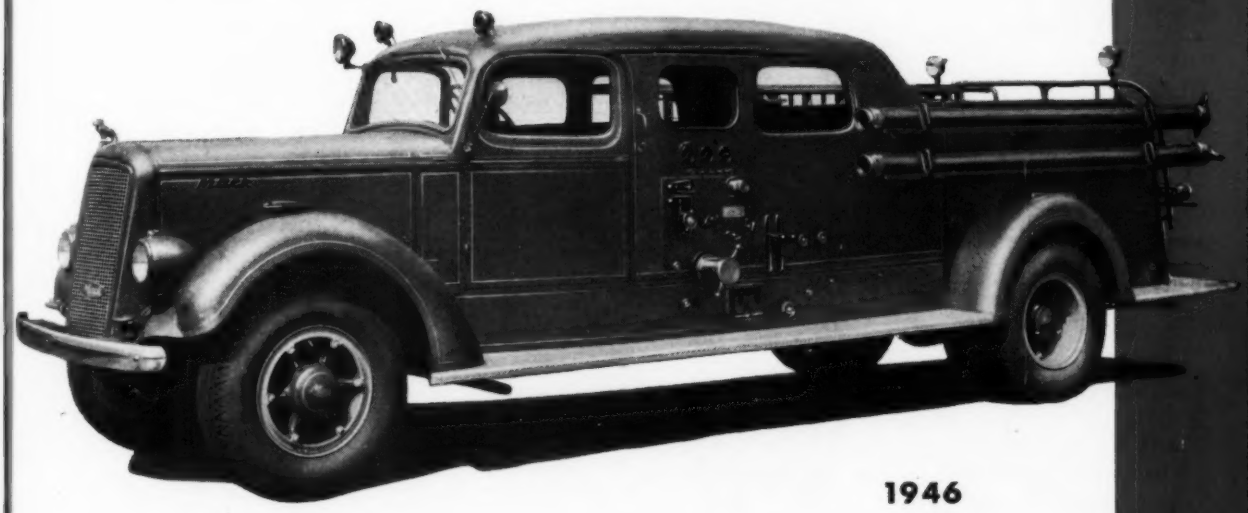


MACK put America's first commercial gasoline vehicle on the road soon after the birth of the automotive industry. And in 1910 Mack began building fire-fighting apparatus. Within a year two outstanding *firsts* had been developed at Mack—the *first* motor-propelled hook-and-ladder wagon ever built . . . and Mack's *first* pumper, destined to set standards for the industry. Since then Mack *firsts* have continued to become criterions for fire apparatus builders. Today, speedy, powerful Mack fire equipment brings *more new firsts* within reach of progressive communities.

..TO NOW!

LOOK AT A FEW OF MACK'S SIGNIFICANT FIRE-FIGHTING *FIRSTS!*

- *Self-starter*
- *Left-hand drive*
- *Series-parallel, pressure-volume centrifugal pump*
- *Power-actuated brakes*
- *Four-wheel brakes*
- *Heat-interchanger for cooling pumpers*
- *Filtration of gasoline, oil, and air*
- *Thermostatic temperature control*
- *Radiator shutters*
- *Low chassis suspension*
- *Mechanical aerial ladder hoist*
- *Water-carrying pumpers*
- *Fire apparatus with inclosed body*



1946

AND NOW... this modern Type 75 pumper, 750 gallon capacity . . . specially designed with two rear discharge gates. Its canopy-cab arrangement seats seven crewmen. And important to remember . . . every superior standard the name Mack implies is built into Mack Fire Apparatus. Give your community this additional measure of protection.

MACK MANUFACTURING CORPORATION, FIRE ENGINE DEPARTMENT, LONG ISLAND CITY 1, N.Y.

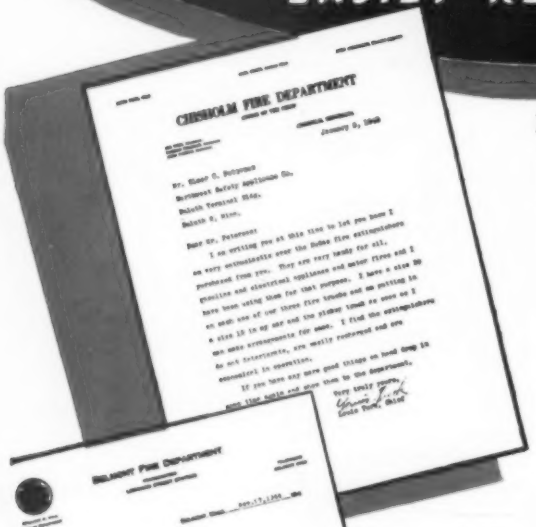
The Automotive Industry's 50th Anniversary is Mack's 46th!

Mack FIRE APPARATUS

If your community needs additional fire-fighting equipment or replacements, think of Mack. . . . Remember, Mack Fire Apparatus is backed by the greatest engineering resources in the industry.

THE FIRE-STOPPING SPEED OF ANSUL-DUGAS DRY CHEMICAL EARNS ENTHUSIASTIC PRAISE FROM MEN WHO FIGHT FIRES

"EFFECTIVE..ECONOMICAL.."
"MINIMIZES THE DAMAGE.."
"DOES NOT DETERIORATE.."
"EASILY RECHARGED...."



CHISHOLM FIRE DEPARTMENT

January 6, 1948

Mr. Elmer C. Peterson
Northwest Safety Appliance Co.
Fourth Transport Bldg.
Duluth 2, Minn.

Dear Mr. Peterson:

I am writing you at this time to let you know I am very enthusiastic over the Dugas fire extinguishers we have been using them for that purpose. I have a size 20 and a size 10 in my car and the other three are putting in as not inexpensive, are really reasonable and are economical in operation.

If you have any more good things on hand drop in this office with one and show them to the department.

Very truly yours,

Chief

Albany Fire Department

Ansul Chemical Company
Marinette, Wis.

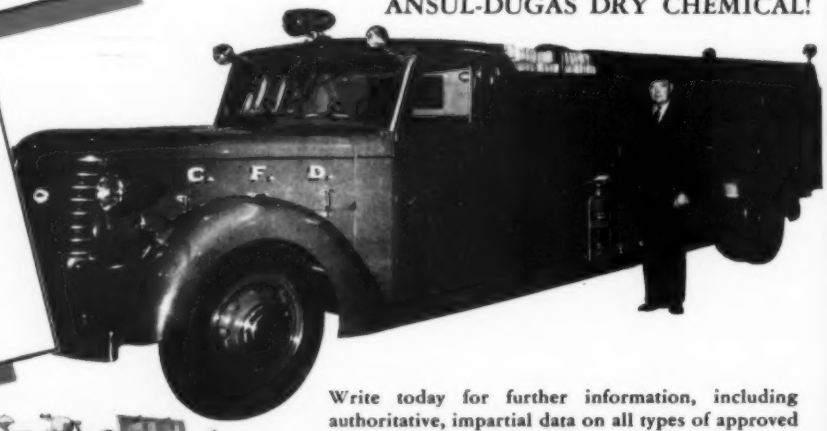
Attention Mr. R. C. Roberts, Ch. Engr.

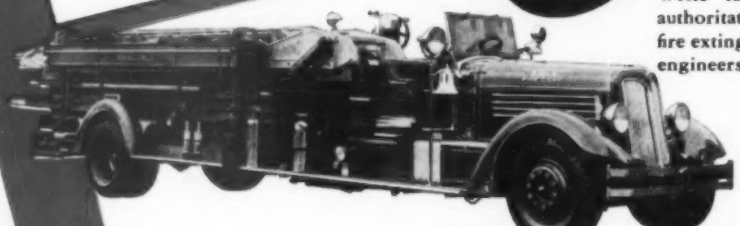
Dear Sirs:

Your letter of September 18 received and contents noted. I would be very happy to allow you to use my statement in your advertising matter.

Yours sincerely,

Chief





Fire chiefs voice their praise of the swift, fire-stopping power of ANSUL-DUGAS Dry Chemical. Time after time, the ever ready reliability of an ANSUL-DUGAS Fire Extinguisher has helped them prevent thousands of dollars in property damage and production losses. Such solid sentiment in favor of quick-acting ANSUL-DUGAS Dry Chemical, by men whose job is fighting fire, is a valuable tip to buyers of fire protection. STOP FIRE FASTER WITH ANSUL-DUGAS DRY CHEMICAL!

Write today for further information, including authoritative, impartial data on all types of approved fire extinguishers. The ANSUL staff of fire protection engineers is ready to serve you.

AN ANSUL PRODUCT
dugas
THE MASTER OF FLAME

Listed and approved by Underwriters' Laboratories and Factory Mutual Laboratories.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

ANOTHER BIG CITY GOES GENERAL

St. Paul is the latest addition to the many cities now enjoying dependable, efficient fire protection with General Fire Trucks. This piece of fire apparatus is typical of General's complete line of Fire Trucks.

All over the United States, in large cities such as St. Louis, Kansas City, Minneapolis, Detroit, Dallas, and Cleveland, as well as in small communities and rural areas, General Fire Trucks are rated "tops" by the men who use them.

There is a reason for this popularity. General's location in the heart of the Motor City enables us to keep abreast of the latest designing and manufacturing improvements, and adapt these developments to Fire Truck use. General was the first to introduce many improvements that have since become standard in fire truck construction.

Whatever your requirements, there is a General Fire Truck to meet your needs. Like all General fire-fighting apparatus, you will find they give top performance under fire.

Firsts by GENERAL

- 1st Streamlined Sedan Fire Truck
- 1st Cab-Over-Engine Fire Truck
- 1st Fire Truck Equipped With Combination Engine Cooling System and Pump Heating System
- 1st Perfectly Controlled Engine Regulator
- 1st Combination High Pressure and Low Pressure Fire Truck Delivered in United States. 60 G.P.M. at 800 lbs. pressure; 500 G.P.M. at 120 lbs. pressure

IF IT'S GENERAL IT'S DEPENDABLE

THE GENERAL FIRE TRUCK CO.

DIVISION OF THE GENERAL DETROIT CORP.

2200 E. Jefferson, Detroit 7, Michigan

West Coast Affiliate: The General Pacific Corp., Los Angeles, San Francisco, Seattle

DID YOU KNOW—An average of only 1,000 fire trucks are produced annually by the entire industry in peace time? Yet General alone produced 512 Fire Trucks in one year. General built thousands of fire trucks for the Armed Services during the war.

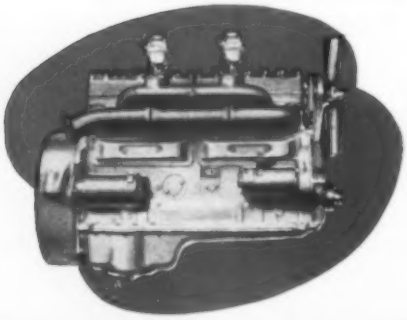
WARD LA FRANCE

FOR *Engineered*

FIRE TRUCK PERFORMANCE

CONSIDER

Ward LaFrance has specialized in the engineering and production of fire apparatus for over twenty-five years. The new Ward LaFrance Triple Combination Pumpers are better than ever and include fire-engineered features for trouble-free performance. Note the advantages this means for your fire service:

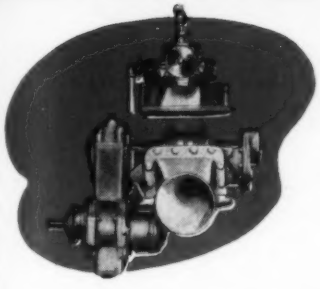


ENGINE: The full powered 6-cylinder Ward LaFrance engine is a fire truck engine, designed and built for fire fighting apparatus and nothing else; guaranteed brake horsepower developed at moderate speed thereby insuring long life; patented machined-in piston-head type combustion chamber for clean, efficient combustion; full pressure oil system; seven point bearing crankshaft; camshaft has positive drive helical cut gears—no chains; removable wet sleeve cylinders making the engine a permanent investment.

WARD LA FRANCE

GREAT AMERICAN INDUSTRIES

WARD LA FRANCE *First*-



PUMP: Two-stage centrifugal; easily disassembled in the chassis—upper halves of the pump and transmission case are bolted to the lower half by one horizontal flange only—an exclusive feature eliminating the necessity of separating two vertical flanges from the upper pump casting in order to remove the latter; ground position controls; fully automatic clutch operation.

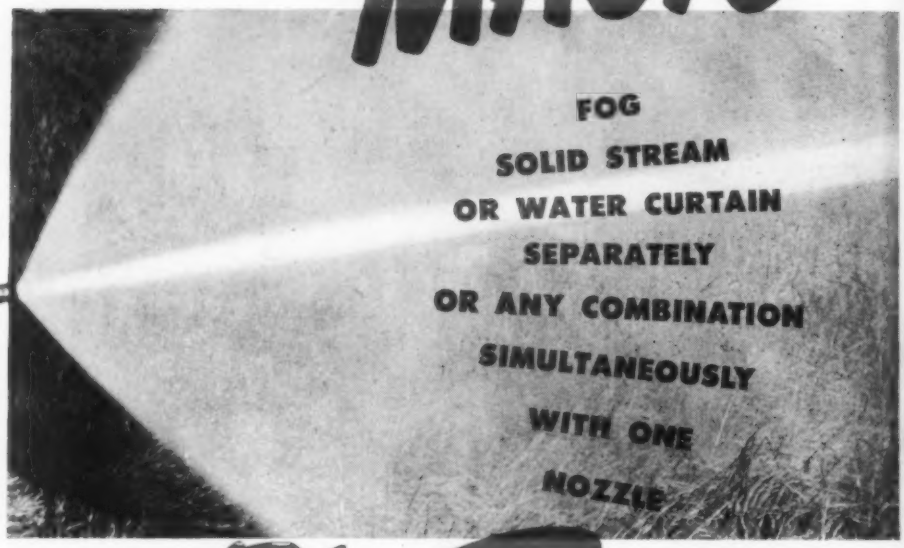
FAMOUS FEATURES: Exceptional maneuverability gained by special front axle construction; variable rear axle ratios to suit local performance requirements; pressed steel side rails with extra wide flange providing extra load carrying capacity; improved braking.

Ask For Illustrated Bulletins

TRUCK DIVISION

INCORPORATED, ELMIRA, NEW YORK

IT'S FIRE-FIGHTING MAGIC



3 SIZES

1" Booster Nozzle
Length 7 in.
Weight 3¾ lbs.

1½" Standard Nozzle
Length 8 in.
Weight 6 lbs.

2½" Heavy Duty Nozzle
Length 14 in.
Weight 13½ lbs.
Patented Riepling valve provides easy control of solid stream shut-off.

The Riepling UNIVERSAL NOZZLE

Fires won't wait for nozzle changes. When you need a water curtain, fog, solid stream or some combination you need it *right now*. No time to run for another nozzle or spray tip.

With the Riepling UNIVERSAL NOZZLE, you make the stream change instantly. A bit of fire-fighting magic in your hands!

The Riepling's performance is convincing. We'll gladly send folder with all the facts, including water discharge data.

Write for your copy today!

MANUFACTURED EXCLUSIVELY BY

George E. Sleeper COMPANY

2608 NINTH STREET ENGINEERS BERKELEY 2, CALIF.

SOLID FOG BALL AT 90 POUNDS • NO HOLES TO CLOG • LOW WATER CONSUMPTION

That's all, Boys—

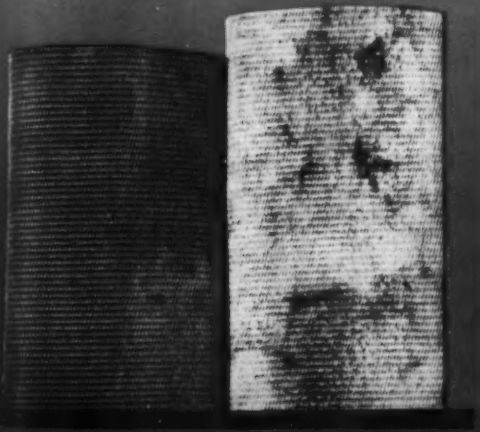
The HOSE *was the Hero at This Fire!*

it's MANHATTAN'S

RADIO-ACTIVE TREATED

MILDEW-PROOF, ROT-PROOF, FREEZE-PROOF FIRE HOSE

Sample lengths of Manhattan Radio-Active Treated Fire Hose and old style treated fire hose buried side by side 12" deep in a Florida swamp for three months. End of test showed old style treated fire hose badly affected by rot and mildew growths. Required only 130 lbs. pressure to burst. Radio-Active Treated Fire Hose showed no injurious effects from the dampness or mildew. Required 630 pounds pressure to burst (same as new hose).



Out late in freezing weather and fresh as a daisy for the next fire . . . that's the life of Manhattan Radio-Active Treated Fire Hose. Manhattan has patented a way of treating fire hose cotton jackets with certain salts of rare earth metals having radio-active properties that repel water and moisture. This treatment doesn't wear off—it lasts for the life of the hose.

Firemen have more "fight" for the fire—less fatigue with Radio-Active Treated Hose. It doesn't get water-soaked and heavy—it doesn't freeze stiff in winter weather.

The hard work of drying out hose is not necessary. Manhattan Radio-Active Treated Fire Hose can be used and re-used without time out.

The example shown here as part of exhaustive tests has helped prove the power of the Manhattan process to protect fire hose from mildew and rot.

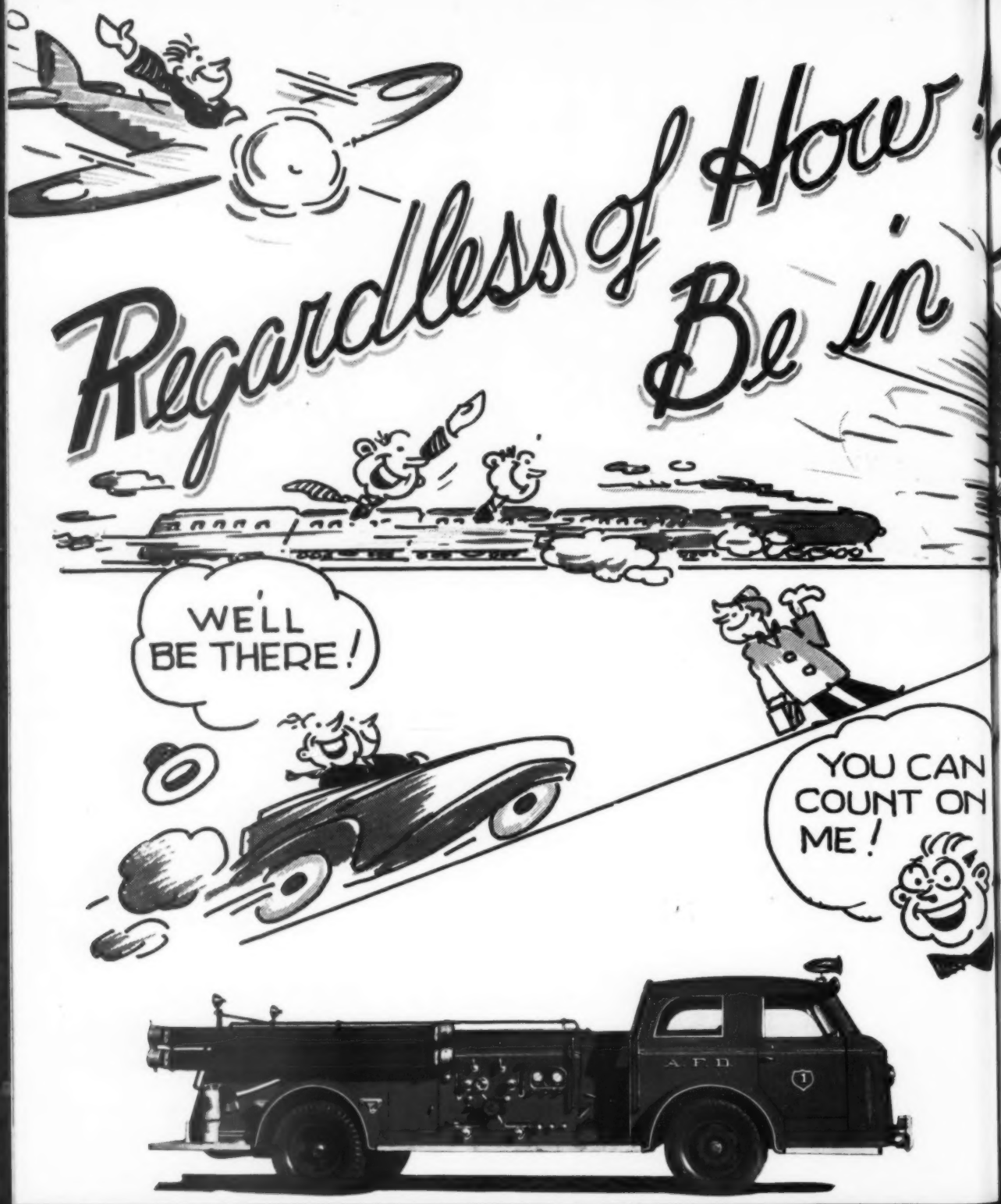
10 Points of Superiority

1. The only radio-active treatment for cotton fabric
2. Treatment renders hose permanently mildew-proof
3. Treatment is moisture repellent
4. Treatment is unaffected by water
5. Treatment prevents hose freezing in winter
6. Treatment will not sweat out or rub off
7. Treatment preserves original hose strength, flexibility, and durability
8. Useful life of hose subject only to wear or accident incident with use
9. Treatment reduces maintenance cost by eliminating drying of jackets
10. Flat-folding, easy to handle

RAYBESTOS-MANHATTAN, INC.

MANHATTAN RUBBER DIVISION

EXECUTIVE OFFICES AND FACTORIES PASSAIC, NEW JERSEY

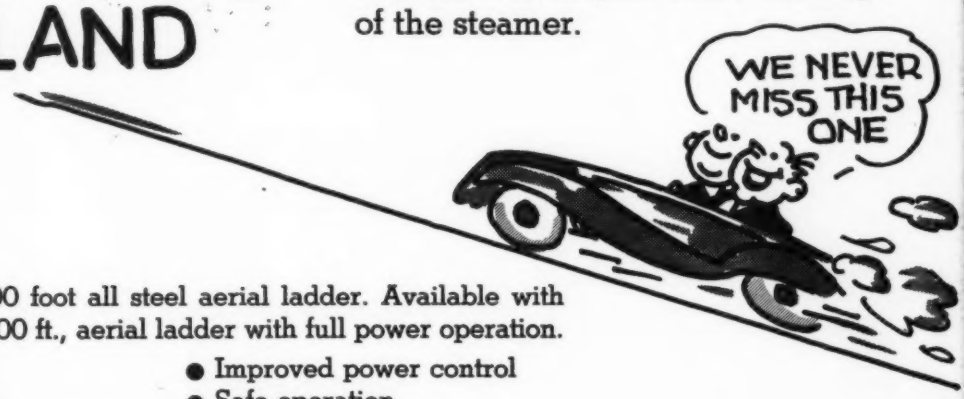


The METROPOLITAN—1250 g.p.m. capacity. Available in all standard capacities, Class A rating, either open or cab type.

- More driver visibility
- Shorter turning radius
- More hose capacity
- More accessibility
- More equipment space
- More reserve capacity

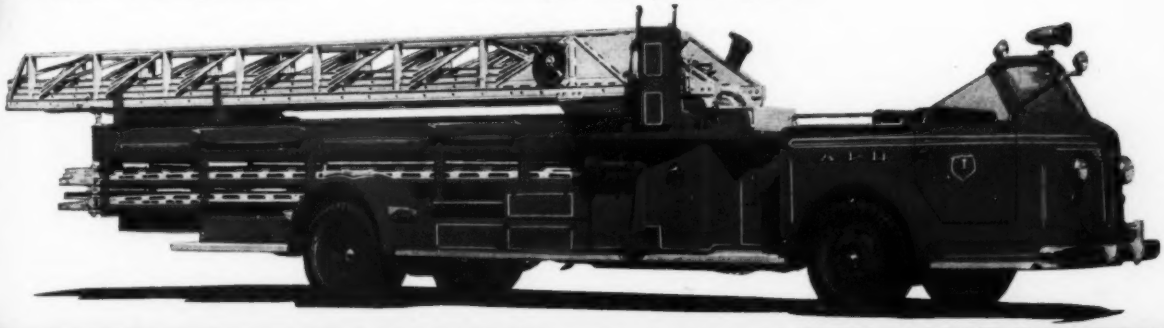
JULY 23-26 for the Post War I.A.F.C. Convention

See the American-LaFrance new Post War models of fire engines and aerials that will be exhibited and demonstrated. They are new—and different. Not prewar models with minor "improvements"— but new from the front bumper to the rear step to give the fire service the best fire engine since the days of the steamer.



Model 4-100 Aerial, 100 foot all steel aerial ladder. Available with 65 ft., 75 ft., 85 ft., or 100 ft., aerial ladder with full power operation.

- Short overall length
- More driver visibility
- Shorter turning radius
- Improved power control
- Safe operation
- Ample equipment space



AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

WaterFOG SCORES HIGH AGAIN IN FIVE HOUSE-FIRE TESTS

TEST NO 3: *Object* — to extinguish large fire on two floors, behind partitions and walls and in blind attic. *Preparation* — piles of combustible material in first floor; plaster and lath removed from ceiling; excelsior in second-floor room and attic with trap door open; attic vented by open windows and holes in second-floor ceiling. Fire started on first floor after priming with 5 gals. each of gasoline and solvents. Photo taken 30 seconds after ignition shows dwelling well involved.

Extinguishes Cellar, Attic and Completely Involved House Fires Quickly... Safely at only 100 lbs. Pressure

If you missed the original reports of the comprehensive field tests of the use of Rockwood WaterFOG on a condemned Hampden, Conn. 2½-story frame dwelling held under the joint sponsorship of the Hampden Fire Dept., Chief R. C. Spencer, and the New Haven Fire Dept., Chief Paul P. Heinz, here are the highlights.

TEST NO. 1 showed the ease and safety with which a cellar fire can be extinguished by advancing line through heat and smoke down basement stairs behind WaterFOG Nozzles.

TEST NO. 2 demonstrated how a large cellar fire can be quickly extinguished by applying "fog" through hole in first floor by means of cellar pipe.

TEST NO. 3 described in pictures and captions.

TEST NO. 4 saw an attic fire knocked out in 2 sec. with 7 gals. of water by WaterFOG applied through 2½-in. nozzle mounted on aerial ladder.

TEST NO. 5 established WaterFOG's ability to control a fire, completely involving a house, by eliminating all vertical heat and sparks.

For further evidence that Rockwood WaterFOG *at ordinary pressures* now available on existing fire-fighting equipment effectively extinguishes Class "A" fires, reduces fire and water damage, protects men and equipment, write for literature. Remember — Rockwood WaterFOG Nozzles are approved by Underwriters' Laboratories, Inc. and Associated Factory Mutuals.

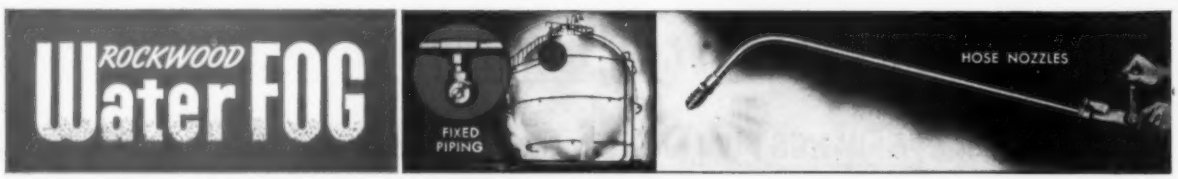
TEST NO. 3 CONTINUED: Fire was fought with two 1½-in. and one 1-in. Type SG-40 Rockwood WaterFOG Nozzles *originally developed for the Navy.* Pressures at nozzles approx. 100 psi. WaterFOG first applied to fire 1 min., 16 sec. after start. In 17 sec., fire in first floor practically out. In 1 min., 40 sec., fire in second floor and attic extinguished. In 3 min., 14 sec., all glowing embers extinguished and water turned off. *Observations:* First application of WaterFOG inside the house caused fire on outside, fed by flames lapping out of first-floor windows, to die down immediately, leaving charred surface. Men operating lines had no difficulty advancing behind fog patterns. Total discharge of water for all operations was 416 gals.

ROCKWOOD SPRINKLER COMPANY

54 Harlow Street, Worcester 5, Massachusetts

Specialists in Fire Protection Engineering, Equipment and Installation since 1907

WATER ENGINEERED BY ROCKWOOD COOLS, CONFINES, SMOTHERS CLASS "A" AND OIL FIRES



PRECIOUS MINUTES LOST MEAN LIVES . . .

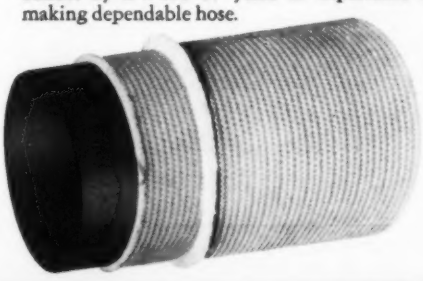
DEPEND ON BWH FIRE HOSE!

Fires won't wait while fire fighters struggle with unwieldy hose. And minutes lost in laying lines may spell the difference between life and death.

Flexibility is one reason why communities over the land choose BWH FIRE HOSE. Other reasons are its dependable ruggedness, long life, "packability," and high quality which the BWH trade mark insures.

Of comparable quality are the nozzles, couplings, and other brass fittings produced in the modern BWH foundry. The fine materials used in these wear-resistant fittings assure top performance.

Specify BWH, the original woven fire hose, and benefit by BWH's 67 years of experience in making dependable hose.

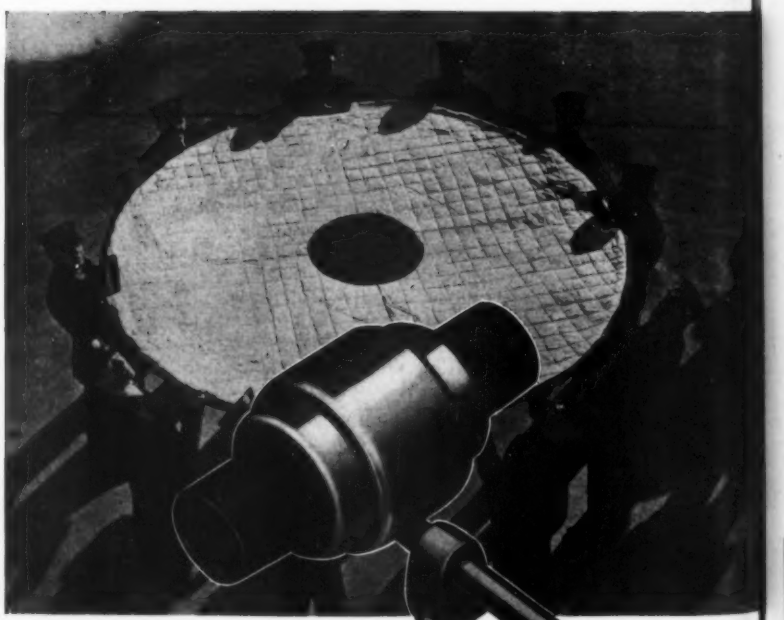


BOSTON WOVEN HOSE & RUBBER COMPANY

Agents in All Principal Cities

WORKS: CAMBRIDGE, MASS., U. S. A. • P. O. BOX 1071, BOSTON 3, MASS.

Let's Remember



The ATLAS is one net especially engineered for fire service. It has modern features found in no other net. Get the best!

ATLAS LIFE NETS

It will help if you will mention FIRE ENGINEERING *when writing* ***advertisers***

DUBUQUE !

YOUR TOWN MAY BE NEXT !

Thirty lives were snatched from the flames of the Canfield Hotel in one of the worst fires in Dubuque's history. To the efficient handling of two Atlas life nets by Dubuque firemen—thirty souls owe their existence.

Let's Remember Dubuque!

No one knows where or when the Dubuque holocaust will repeat itself. One thing we can be sure of—and let's not put it off any longer—the department that is READY, WITH MODERN LIFE NETS, will be in a position to make rescues—and fast!

Let's Remember Dubuque—and the LaSalle—there'll be others like them. It's your responsibility to be ready.

THE ATLAS LIFE NET is the finest, most modern ever devised. Every apparatus manufacturer will be glad to provide a compartment for an ATLAS half or quarter-fold net.

Specify ATLAS when you buy that new truck.

One word of warning! The net or nets you have may be old and outmoded. If they are—get rid of them before you find out they won't work in an actual emergency. The cost of an ATLAS is small—very small—compared with even ONE life.

Let's Remember Dubuque.

YOUR TOWN MAY BE NEXT

ATLAS SAFETY EQUIPMENT CO., Inc.

26 WARREN STREET ★ ★ ★ ★ ★ ★ ★ NEW YORK 7, N. Y.

National Foam, mechanical or chemical, puts out and keeps out petroleum, marine, chemical, aviation, industrial fires.

COMPLETE FOAM FIRE PROTECTION

NATIONAL FOAM SYSTEM, INC., specialists in Foam Fire Protection, manufactures *all* types of foam chemical and equipment. Any risk from the largest oil storage tank to a spray booth is safely guarded by National Foam.

Original developer and manufacturer of AER-O-FOAM, National produces both mechanical and chemical foam—a complete line. Applied by any of the approved methods, National Foam quickly puts out fire and keeps it out.

National Foam adheres to upright surfaces and flows freely over level areas to block off fires and gases, thus preventing flashbacks. Blanketing threatened flammable liquids, buildings and equipment, National Foam isolates fire for quick extinction.

Petroleum, Chemical and Aviation Industries are large users of National Foam. National AER-O-FOAM systems have been approved by the U. S. Coast Guard for use on merchant vessels.

NATIONAL FOAM SYSTEM, INC.

SPECIALIZING IN FOAM FIRE PROTECTION

Packard Building. Philadelphia 2. Pa.

I.A.F.C. plus A.F.

FOR many years, now, the International Association of Fire Chiefs has been protecting life and property throughout the world. Many men have given their lives to uphold the standards for which this Association stands.

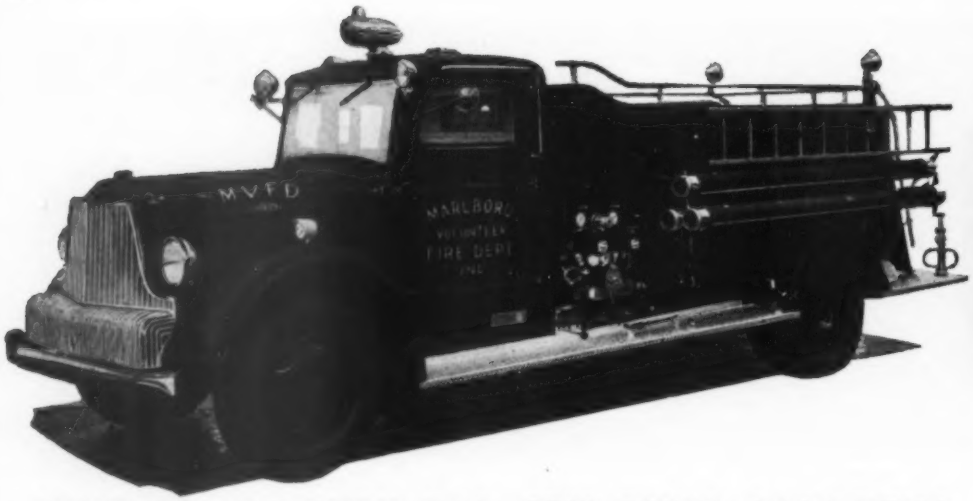
The record proves that no job is too difficult—no danger too great—when the members of your organization are called upon.

We of Ahrens-Fox salute the men who protect us against the hazards of fire. And we will continue to do our part by supplying you with efficient and dependable fire-fighting equipment. Our new plant enables us to give you superlative service on all Ahrens-Fox apparatus, regardless of its age.

AHRENS-FOX

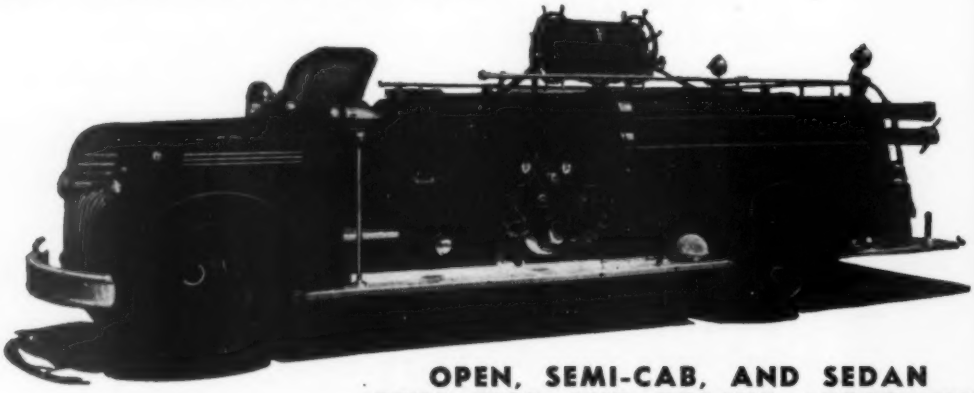
THE AHRENS-FOX FIRE ENGINE CORP. – CINCINNATI 12, OHIO

A Pump for Every Purpose



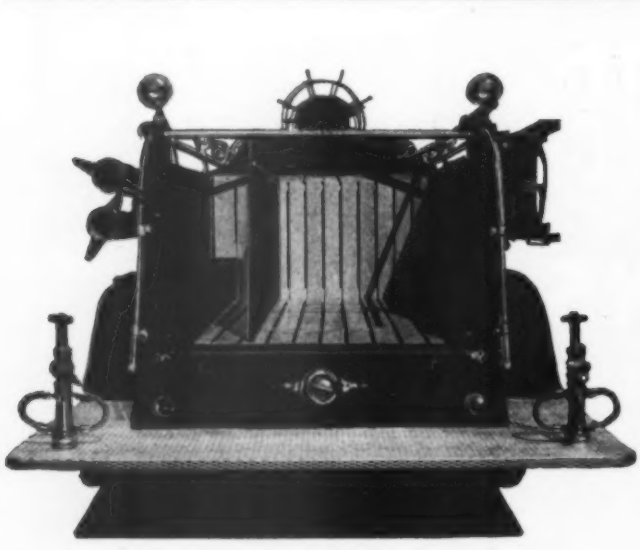
OR

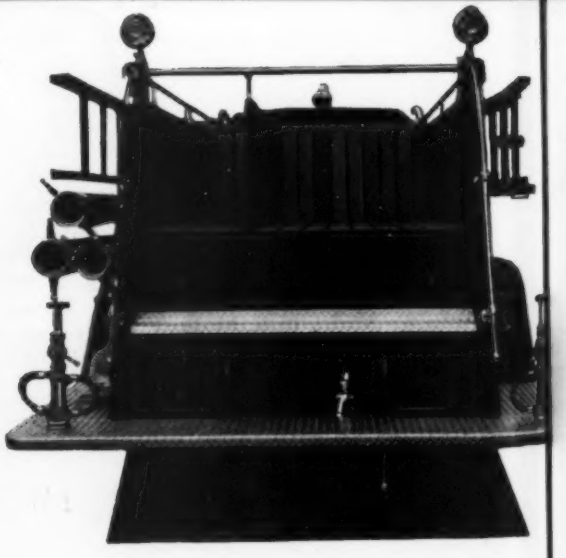
BUILT IN 200 THRU 750 GPM PUMP CAPACITIES



OPEN, SEMI-CAB, AND SEDAN TYPE FIRE AND RESCUE APPARATUS

• CUSTOM-BUILT





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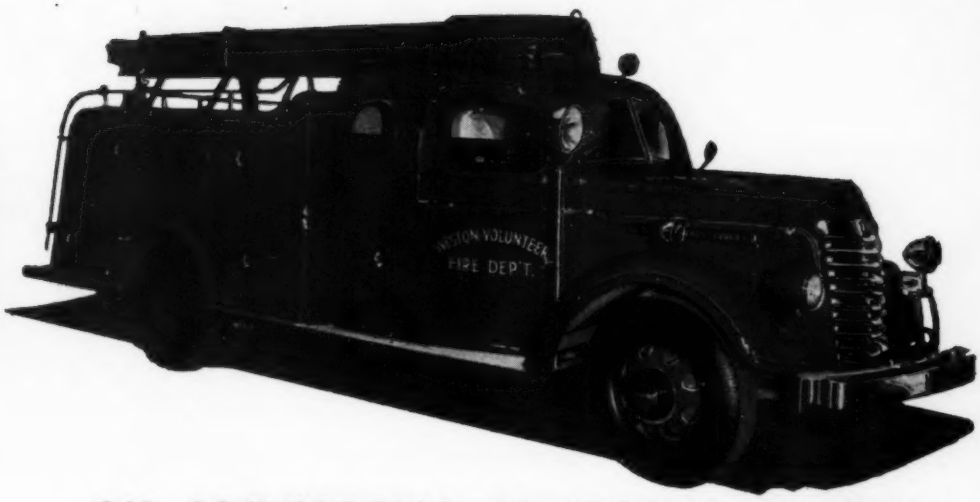
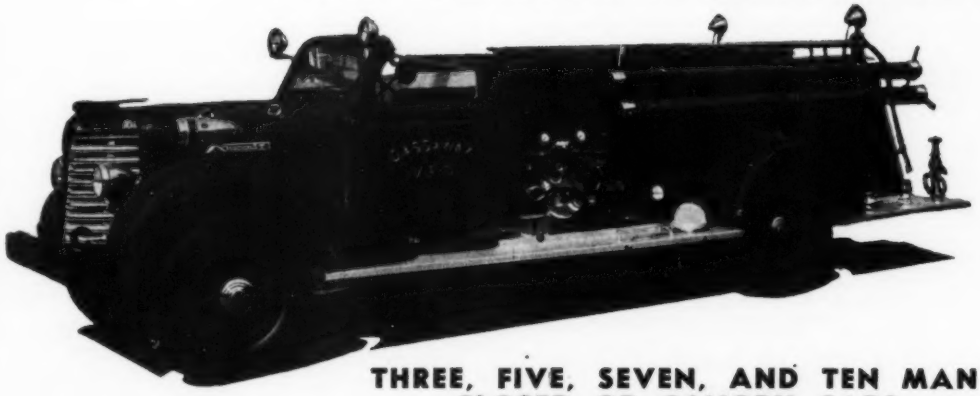


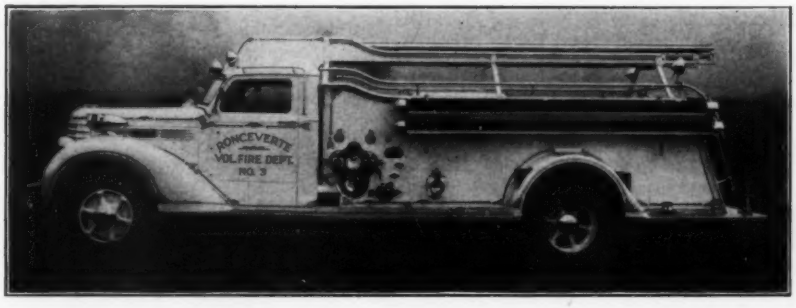
ON COMMERCIAL OR SPECIAL CHASSIS



THREE, FIVE, SEVEN, AND TEN MAN
CLOSED OR CANOPY CABS

US

DEPENDABLE



OREN FIRE APPARATUS COMPANY
ROANOKE, VIRGINIA
"The South's Only Fire Truck Manufacturer"

Please mention FIRE ENGINEERING *when writing advertisers*

THE MOST IMPORTANT ITEM ON THE AGENDA...

At the gathering of Fire Chiefs in Cleveland, many new ideas will require consideration, many important motions will be presented for action.

Yet the *purpose* will be the same as in years past.

The most important item on the agenda will still be *Safety.*

It is fortunate for all of us that Fire Chiefs are so ably fitted by training and experience to carry out their two-fold responsibility – the safe-guarding of lives, the protection of property in the communities they serve.

We are proud that Eureka Fire Hose is playing an important part in the safety program of so many of America's communities.

WE LOOK FORWARD pleasantly to the renewing of old associations at our headquarters at the Cleveland Convention and to the making of new friends.

"For greater protection to life and property"

EUREKA FIRE HOSE

Division of United States Rubber Company

1230 Avenue of the Americas · Rockefeller Center · New York 20, N. Y.

WATEROUS
60th ANNIVERSARY

EXPERIENCED ENGINEERS

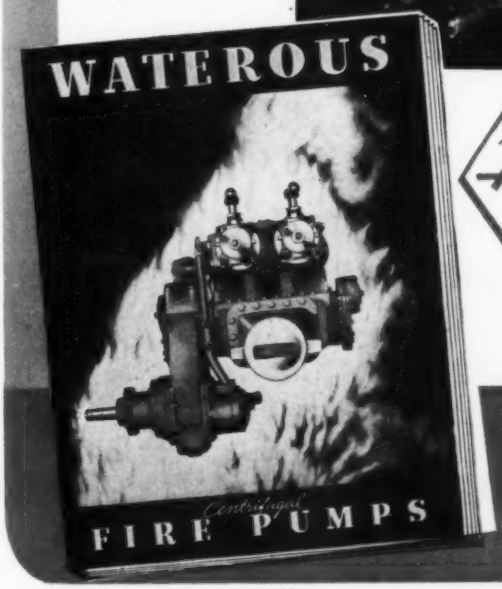
Sixty years with a single purpose—to build the best possible fire pump—plus sixty years of continuous improvement. WATEROUS Fire Pumps are backed by an organization of outstanding engineers, skilled workmen and by a completely stocked service department. These factors add up to a pump that will give you the utmost in dependability.

See Our Exhibit Booths Nos. 28 and 30
IAFC Convention, Cleveland

WELL STOCKED SERVICE DEPARTMENT

PRECISION MACHINES IN AN UP-TO-DATE PLANT

THE MODERN WATEROUS PLANT



Have You Sent for Your Copy?

The new WATEROUS catalog shows in detail the superior construction of WATEROUS Centrifugal Fire Pumps. WATEROUS pumps are used on leading makes of fire apparatus.

WATEROUS COMPANY

SINCE Waterous (Dependable) 1886

ST. PAUL, MINNESOTA, U. S. A.

The New Seagrave ★★★

. . . AGAIN DEMONSTRATES SEAGRAVE LEADERSHIP

Seagrave has been the recognized leader in the Fire Apparatus industry for over half a century and when you see these new models you will quickly realize why Seagrave merits this top place.

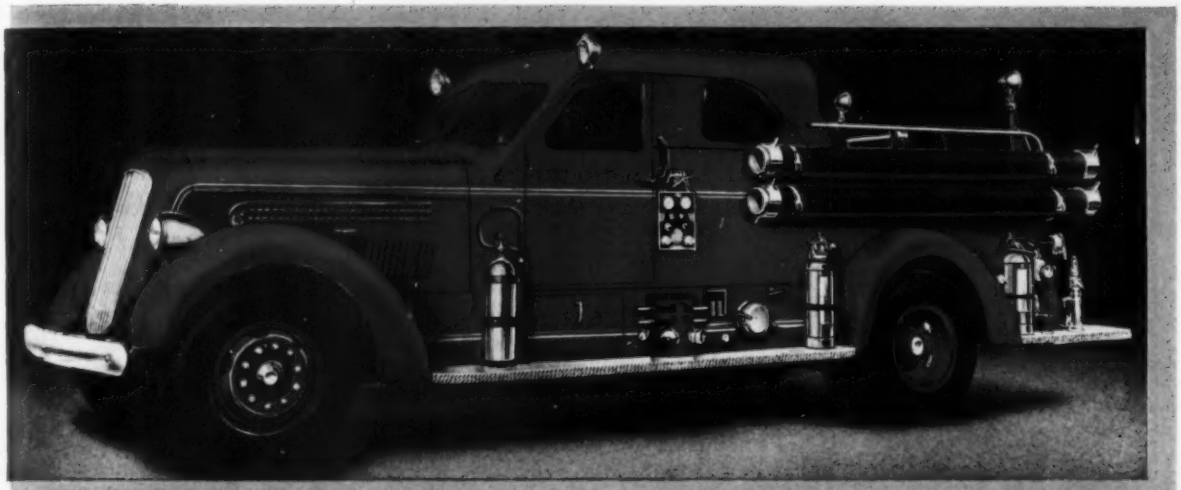
The new and improved Seagrave Pumpers have the very latest and advanced exclusive Seagrave engineering features . . . Seagrave Hydrovac Brakes for greater braking ability, longer liner life and complete driver control. They are equally effective in forward or reverse . . . Full Vision Windshields which are much wider and have a greater angle of slope giving the driver an unobstructed range of outlook . . . Dash Instrument Panel set on an angle to provide a direct view of instruments . . . Pump Instrument Panel now at eye level and incorporated all necessary controls and gauges . . . New Type Pressure Governor Control is a part of pump instrument panel. It has a rotating plastic dial with calibrated figures indicating pump pressure. This Pressure Governor Control becomes illuminated as soon as it is turned to normal pump pressure . . . Throttle and Parallel Series Control are push-pull type. Throttle Control has a lock and vernier adjustment . . . Seagrave Centrifugal Pumps are set deep in the chassis providing a lower center of gravity and making it possible to utilize all the space of the chassis and body . . . Powered with the famous Seagrave V-12 Motor which is noted for its trouble-free service and smoothness of operation.

Back of these New Seagraves are years and years of pioneering, developments, inventions . . . a half a century which has proven the dependability of any piece of Fire Apparatus that bears the name Seagrave.

THE SEAGRAVE CORPORATION
Columbus, Ohio
BICKLE-SEAGRAVE, LTD., WOODSTOCK, ONT.

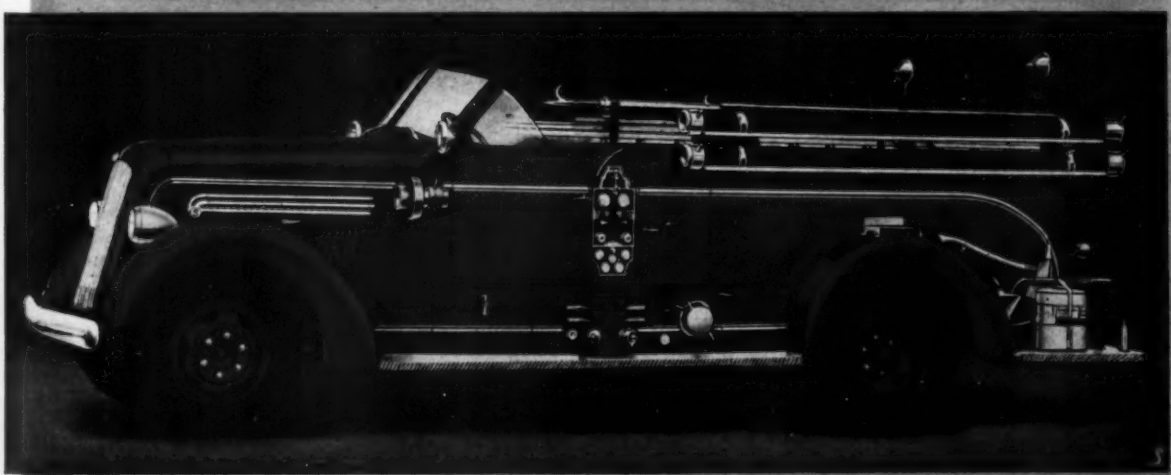
SEAGRAVE

THE GREATEST NAME IN FIRE APPARATUS

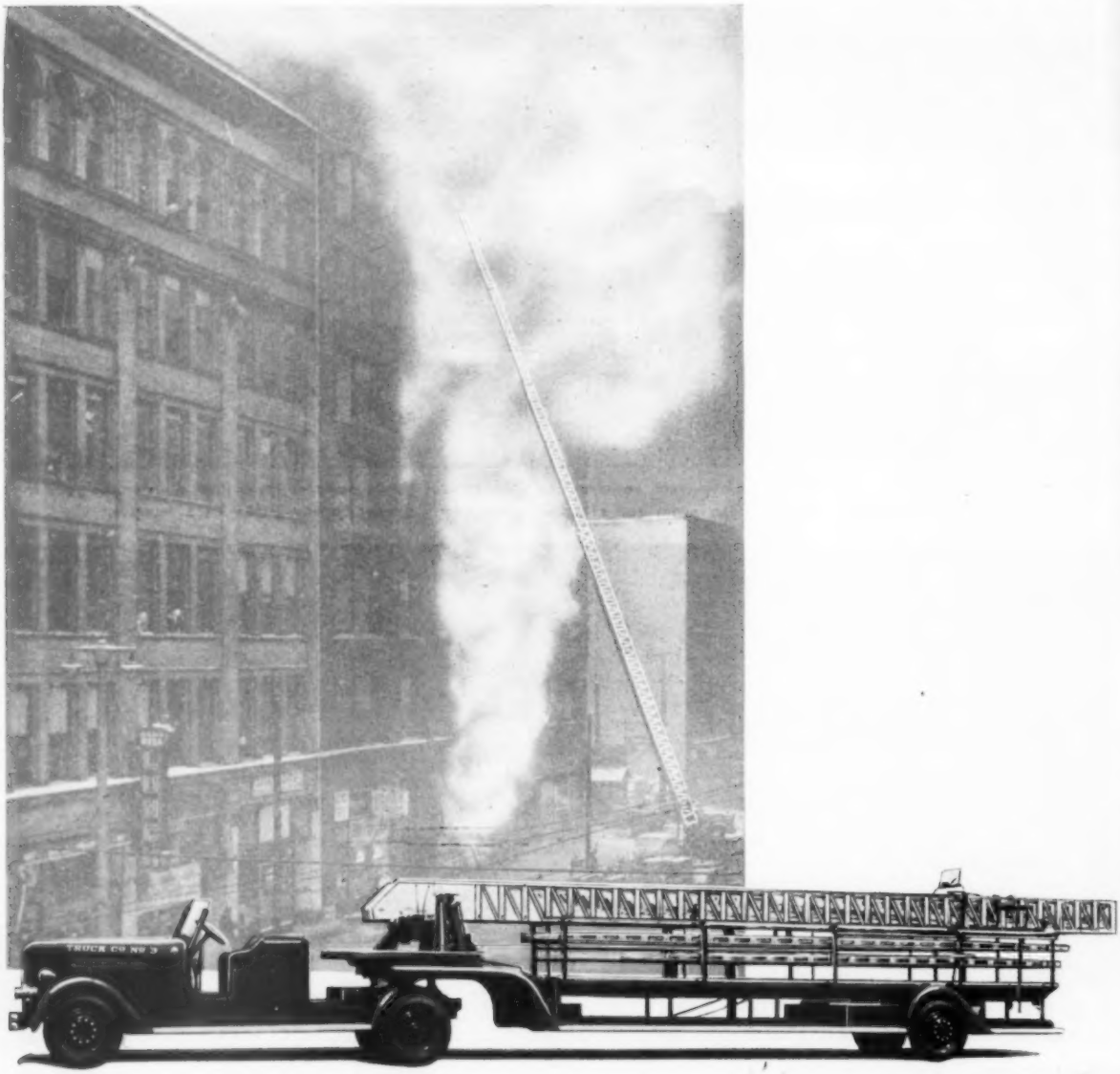


SEAGRAVE CANOPY CAB PUMPER of safety-steel construction. Front seat accommodates three men and canopy seat for four crew members. Plenty of leg room and storage space. Easy access to any part of the pumper.

SEAGRAVE QUAD combines features of a service ladder truck with a pumping engine. Equipped with approximately 240 feet of service ladders. Seagrave Centrifugal Pump delivers 1,000 gallons per minute at 150 pounds pump pressure.



SEAGRAVE OPEN MODEL PUMPER has plenty of storage space. Equipment compartment large enough to accommodate a portable generator. Other compartments for storage of gas masks, tarpaulins, hose rolls, etc. Five compartments in all.



GOOD LADDERS ARE NEEDED FOR EFFECTIVE FIRE CONTROL

When lives and property are at stake, you cannot afford to take a chance with inferior or inefficient ladders. For half a century or more Pirsch ladders have been recognized for their strength and ease of handling.

100′ Pirsch Senior Tractor Trailer Aerial Ladder truck featured above has been delivered to City of Fresno, Calif.

PETER PIRSCH & SONS CO. KENOSHA, WIS.

"BUILDERS OF AMERICA'S FIRST ALL POWERED AERIAL LADDER TRUCK AND AMERICA'S FIRST 100′ AERIAL LADDER"

Kindly mention FIRE ENGINEERING *when writing advertisers*

M·S·A

Chemox

SELF-GENERATING

OXYGEN BREATHING APPARATUS

Generating its own oxygen from a chemical contained in a replaceable canister, CHEMOX represents a long step forward in complete respiratory protection for the fire fighter—an advance receiving widest recognition by fire departments everywhere. Giving one hour's protection in unbreathable air, and weighing only 13½ lbs. complete, CHEMOX uses no oxygen cylinders, high pressure valves or fittings, and is as simple to put on and wear as a gas mask. One replaceable canister does the whole job, making the oxygen you need, as you breathe! Write for Bulletin BM-8.

SETTING NEW PERFORMANCE STANDARDS in respiratory protection for the Fireman!

M.S.A. DEMAND MASK

Here is utmost simplicity combined with practical utility in a cylinder-type mask for emergency service—designed and built by M.S.A. to high standards in every respect! Providing respiratory protection for the user in highly gaseous or oxygen deficient atmospheres, the Demand Mask supplies oxygen or air from a refillable cylinder through a demand regulator—for a period of from one-half to approximately one hour's duration, depending on service conditions. Just put it on, open a valve, and breathe! Ask for Bulletin BM-7.

***WRITE** for a practical demonstration of this modern protection equipment.*

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS AND MEADE STREETS . . . . . PITTSBURGH 8, PA.

District Representatives in Principal Cities

In Canada

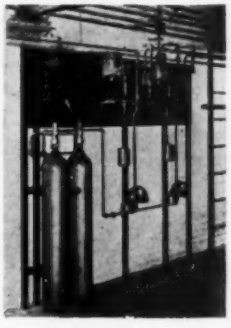
MINE SAFETY APPLIANCES COMPANY OF CANADA, LIMITED

Toronto . . . Montreal . . . Vancouver . . . Calgary . . . New Glasgow, N. S.

Consider these questions for a moment: If you have vaults for filing tracings, blue prints or other valuable records; storage spaces where highly flammable liquids and chemicals are kept; bake ovens, dip tanks, spray booths, and electrical equipment — and a serious fire occurs, how long would you be out of production? How much damage would irreplaceable records and other materials suffer from improper extinguishing agents or methods? If the answers suggest a survey of your present fire protection then consider these facts:

C-O-TWO smoke detecting combined with fire extinguishing is new — modern. The slightest trace of smoke is detected instantly. This new C-O-TWO protection is not dependent upon heat. It operates instantly on the detection of smoke. C-O-TWO pressure release will automatically close doors and windows — isolating a fire. Dry sub-zero carbon dioxide gas from a C-O-TWO built-in system will extinguish a fire in seconds without damage to materials or machinery. Portable extinguishers including the famous C-O-TWO Squeez-Grip valve — wheeled units or hose reel types, afford additional protection against incipient fires. All employ carbon dioxide, the fastest non-damaging fire extinguishing agent. C-O-TWO engineers will help you plan modern fire protection. Write for information.

C-O-TWO Detects Smoke . . . Kills Fire
Saves Lives . . . It's Fast . . . It's Modern



C-O-TWO fire equipment company

NEWARK 1 NEW JERSEY

C-O-TWO

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

Sales and Service in the Principal Cities of the U. S. and Canada

A STEADY STREAM
OF FMC HIGH-PRESSURE FOG FIRE FIGHTERS

A steady stream of FMC High-Pressure Fog Fire Fighters continues to leave the Bean plant to satisfy orders pouring in from all parts of the country.

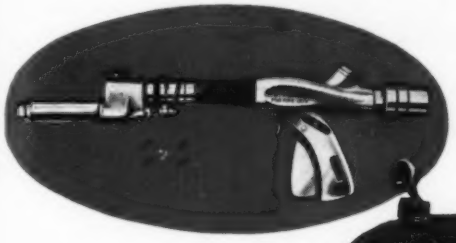
With FMC high-pressure equipment . . . approved by Underwriters' Laboratories . . . you get everything you need to knock down fires—*fast!*

ONE: The famous FMC high-pressure (850 lbs.) pump—built by Bean and powered by the FMC never-fail pump drive.

TWO: The FMC Fog Fire Gun and *real* high-pressure hose, designed for rugged duty. Also the patented FMC hose couplings.

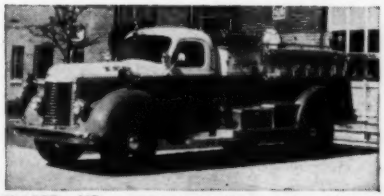
THREE: The assistance of a new and revolutionary FIRE FIGHTING TECHNIQUE and our Fire School training.

INVESTIGATE! WRITE FOR INFORMATION

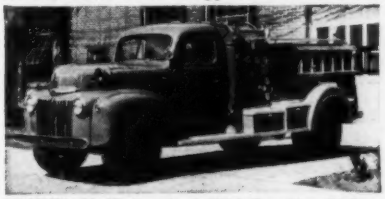


EVERY TYPE FOG PATTERN with the new FMC Fog Fire Gun, patented by Bean. Provides every fog pattern you need for high-pressure work. One man can handle—easily.

MT. MORRIS, ILL. *Standard FMC Fog Fire Fighter recently delivered to Mt. Morris Community Fire Dept. Complete in every respect, this type unit carries its own water supply—provides two guns of 30 gallons each at 600 lbs. or more nozzle pressure.*



TRAPPE, MD. *Standard FMC Fog Fire Fighter recently delivered to Trappe Volunteer Fire Co.*



HAMLIN, N. Y. *Standard FMC Fog Fire Fighter recently delivered to Hamlin Fire Dept.*

HARPURSVILLE, N. Y. *Standard FMC Fog Fire Fighter recently delivered to Colesville Fire Co.*

GASTON, IND. *Standard FMC Fog Fire Fighter recently delivered to Washington Township Fire Dept.*

FMC *Original* **HIGH-PRESSURE FOG FIRE FIGHTER**

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY CORPORATION

JOHN BEAN MFG. CO., 709 HAZEL ST., LANSING 4, MICH. • BEAN-CUTLER DIVISION, 409 JULIAN ST., SAN JOSE, CALIF.

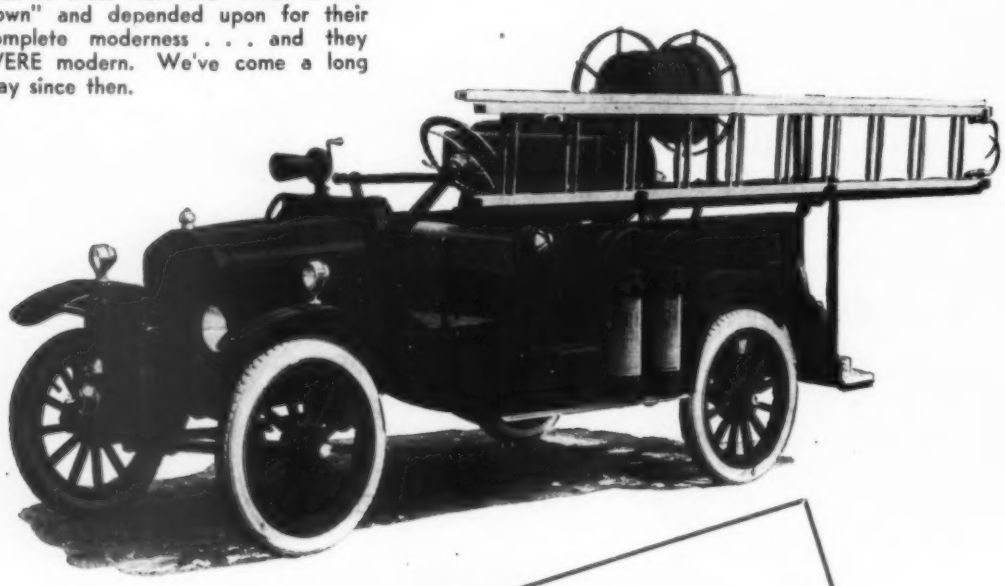
BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

SINCE WAY BACK WHEN

WE'VE BEEN MOVING AHEAD!

REMEMBER:—

It's been a long, long time since Pumpers such as these were the "Pride of the Town" and depended upon for their complete moderness . . . and they WERE modern. We've come a long way since then.



REMEMBER:—

Be sure to see the two big, new Pumpers on display at the International Fire Chiefs Convention in Cleveland. As always, our all-utility Pumpers are more modern than tomorrow because of yesterday's experiences . . . see them yourself.

AMERICAN FIRE APPARATUS

AMERICAN FIRE APPARATUS CO

BATTLE CREEK, MICHIGAN

Fight Fire the Modern, More Effective Way

with FIRE-SNUFFER NOZZLES and StrangleAIR FOAM

Not every type of nozzle can deliver foam effectively. FIRE-SNUFFER NOZZLES are specially designed to handle this war-tested fire-fighting agent. And the foam they deliver is of uniform consistency. FIRE-SNUFFER NOZZLES are light, easy to clean and handle and available in standard sizes from 2½ GPM to 250 GPM.

StrangleAIR FOAM is white, odorless, non-toxic, clean and safe to handle or store. It sticks to burning surface and lasts for hours. StrangleAIR eliminates flashbacks and prevents formation of noxious or dangerous fumes. It reduces heat rapidly and makes it possible for firemen to get to the blaze.

Cut fire losses and smoke accidents with FIRE-SNUFFER NOZZLES which may be ordered through fire appliance supply houses.

For prompt, detailed information fill in coupon and mail today.

Please send me illustrated Bulletin 751.

Name .....

Fire Dept. .....

Address .....

.....

StrangleAIR FOAM · FIRE-SNUFFER NOZZLES

AMERICAN DIE & TOOL COMPANY, INC., East Reading, Pennsylvania

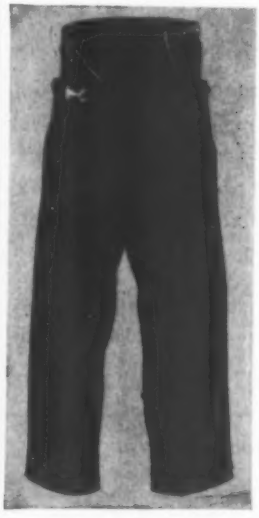
MIDWESTERN
PROTECTIVE CLOTHING
FOR FIREMEN

SINCE the war, we have a large portion of our line of firemen's and policemen's clothing in production due to more fabrics being available. By fall, we hope to have the balance of our line available. Orders for fall should be placed early in order to assure your departments protection this winter.

The Midwestern Combination Suit, Outfit 101, pictured at right, can be purchased together or in single units. This suit is made from several types of waterproof fabric, highly serviceable, many outstanding features listed below:

The Coat:

- Adjustable collar strap
- Reinforced collar band for lining
- Lining attached with quick snap button
- Corduroy lined collars
- Reinforced, double stitched seams
- Vertical seams in sleeve shoulders
- Inside of fabric, heavily napped cloth
- Two outside pockets
- Wool detachable lining
- 6-inch storm flap



The Pants:

- Lining held by snap buttons
- Rubberized fabric belt in lining
- Eight suspender buttons
- Two side and one hip pocket
- Safety snap on belt
- Reinforced adjustable belt
- Special Vanitex fabric
- Wide protecting flap
- Reinforced by rivets

AVAILABLE!

Regular Firemen's Boots

We can supply regular firemen's boots felt lined, reinforced instep.

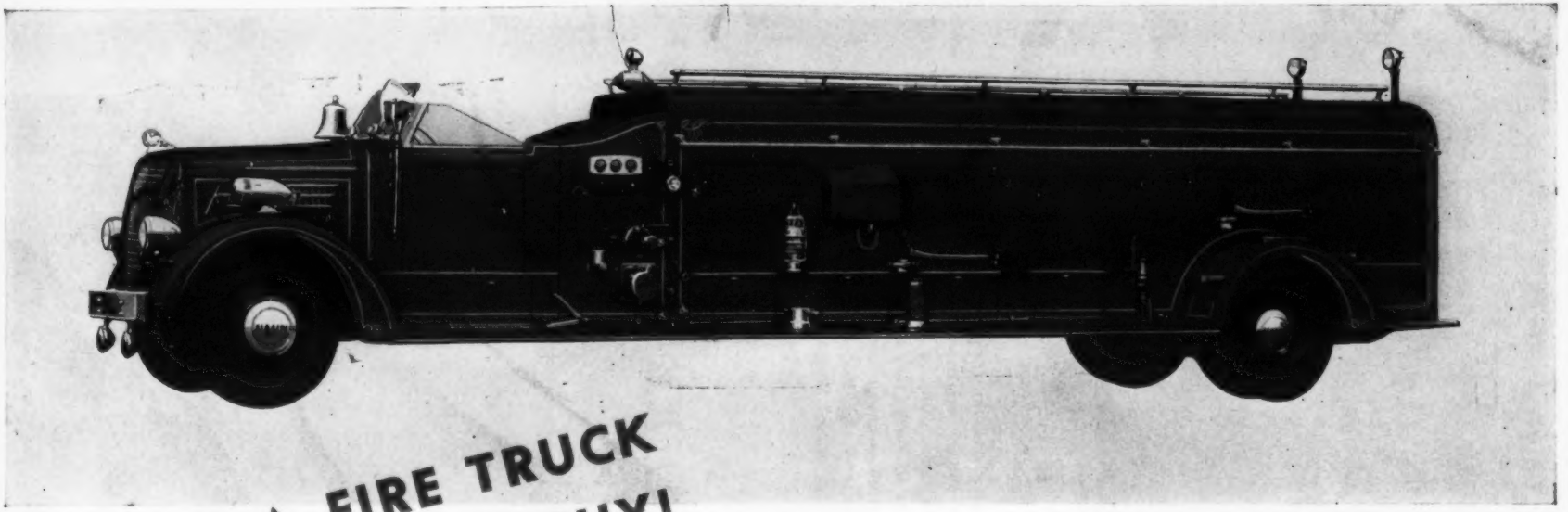
See your Midwestern Mfg. Co. dealer for prices or write the factory.

MACKINAW COATS ARE MANUFACTURED BY

MIDWESTERN MFG. CO.

MACKINAW, ILLINOIS

Please mention FIRE ENGINEERING *when writing advertisers*



AS FINE A FIRE TRUCK AS MONEY CAN BUY!

HAHN has built dependable, efficient Fire Apparatus for 39 years—and Hahn proposes to give you the latest proven developments in fire fighting equipment—as quickly as available. Your desires will be given every consideration and adapted wherever practical. Anticipate your needs NOW — order as far ahead as possible. Materials are not readily obtainable at present—it still takes time to build GOOD fire apparatus.

HAHN MOTORS, INC.
HAMBURG **PA.**

Dependable Fire Apparatus Since 1907

HAHN

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers*

PacKo

EMERGENCY CUTTING EQUIPMENT

SPEEDS

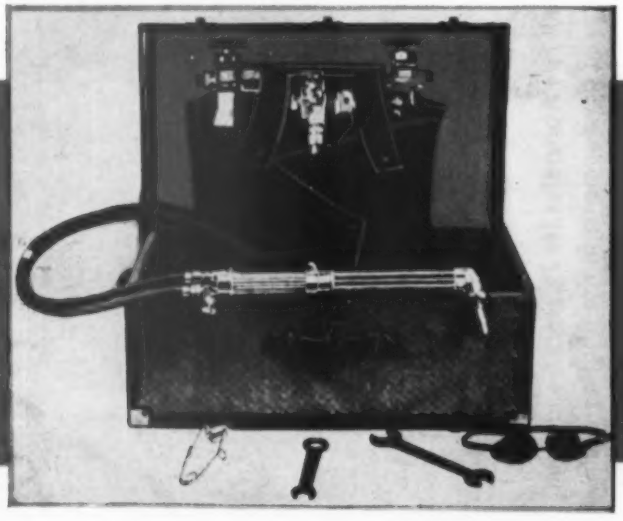
Fire Fighting and Rescue

it CUTS THROUGH STEEL

A Modern Necessity in Every Department!

This outfit has been designed and perfected by practical fire fighters. It does an outstanding job as a forcible entry tool, cutting through steel bars, steel doors, gratings, shuttles, in fact it literally walks through steel. Think of the time you can save in getting at the fire, think of the time you can save —the lives you can save—in rescue work at automobile and airplane crack-ups. Frankly, no fire department is completely equipped without one or more of these outfits. They are available now. Get in touch with your dealer or write our nearest office for complete details.

The Last Word in a Forcible Entry Tool!



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"SACHEM" — a tribal leader — and our "Sachem" leader line shut-off nozzle is truly a leader. It's the one shut-off nozzle you can order any time and rest assured you are getting the best nozzle you can buy.

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Perfect Combination Play Pipe. Comes in 2½-inch size. Built to stand the gaff.

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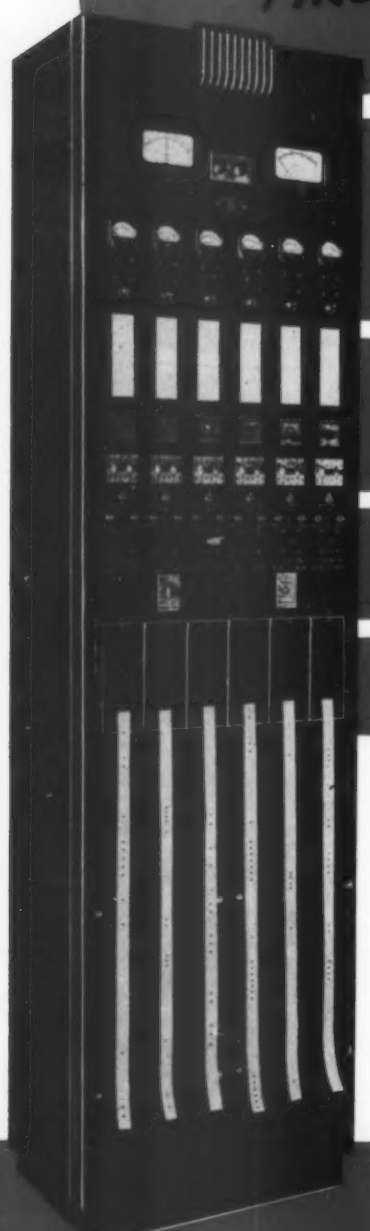

Master equipment with its associated line equipment incorporated within the **same cabinet** and mounted in such a manner as to eliminate a separate master panel. Separate meters for each line. Individual supervising equipment.

Box designation cards provided for each circuit. **180-box capacity.** Separate testing equipment for each circuit. All circuits arranged for **automatic grounding** in case of line break.

Instrument jacks and telegraph keys **insulated for** 5,000 volt above ground, for each circuit. All controls are conveniently arranged and designated.

ng register for each circuit — panel-mounted **electrically wound,** using 1" paper tape.

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Quaker Fire Hose is used by many cities and towns . . . from the largest metropolitan centers down to small villages. Quaker can take care of you promptly whether you can use 50,000 feet or 50 feet. Be sure and consult Quaker before placing your next order.

This Special Easy-Fold construction can be furnished throughout the Quaker Municipal Fire Hose Line, which includes Heavy Duty Single and Double Jacket Hose, also Multiple Woven Jacket.

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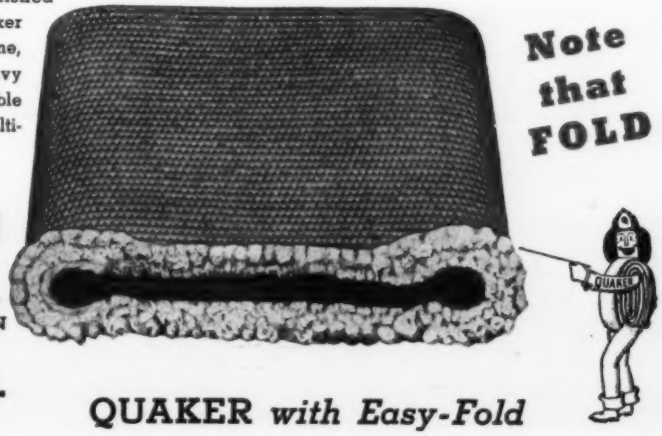
has more flexibility and is easier to handle with longer life. Up to one-third more additional footage can be added to truck-bed than the regular fire hose, and is easier to pack without sacrificing the extra long life of either the non-acid forming, slow-aging tube or burst-resistant jacket.



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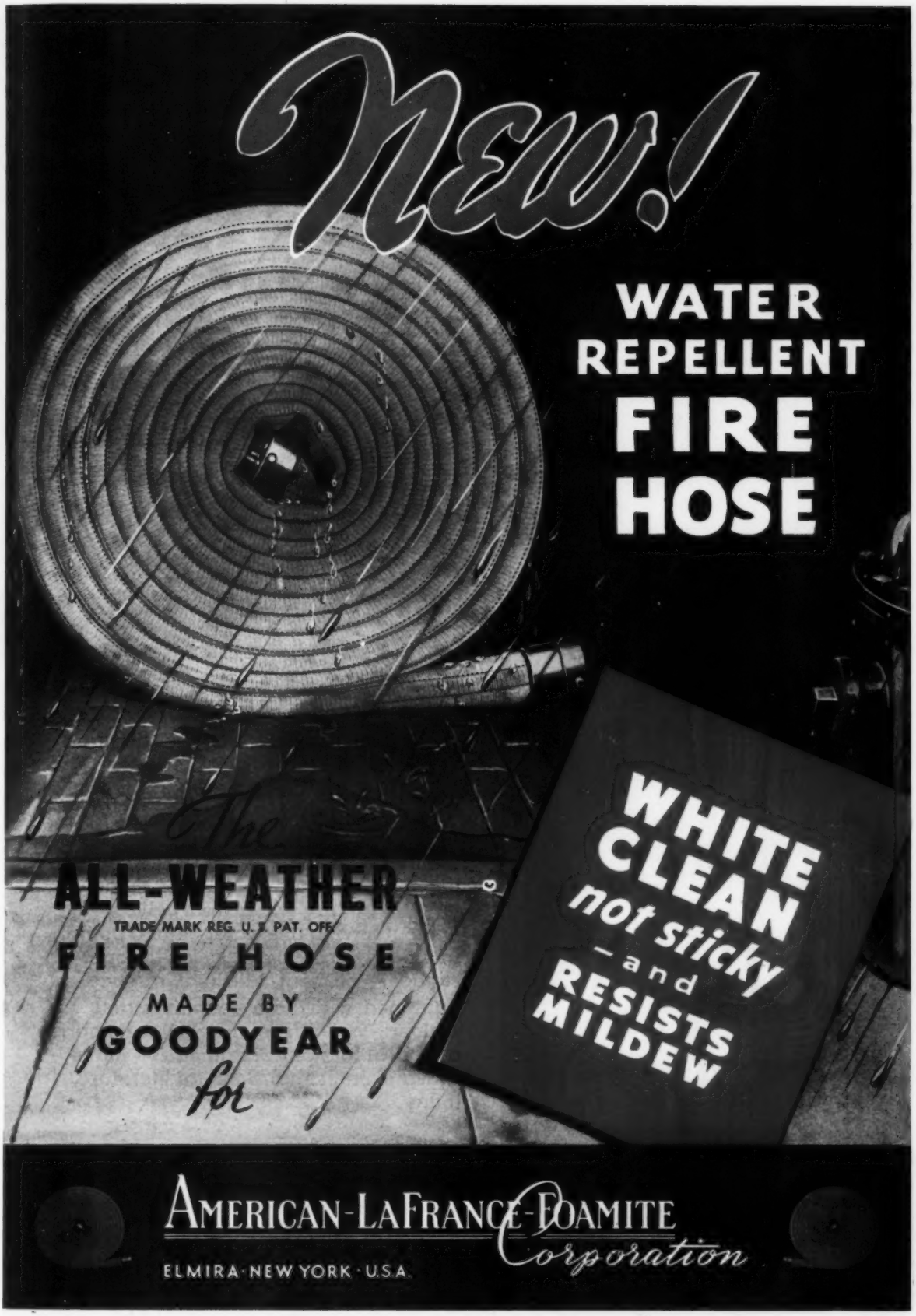
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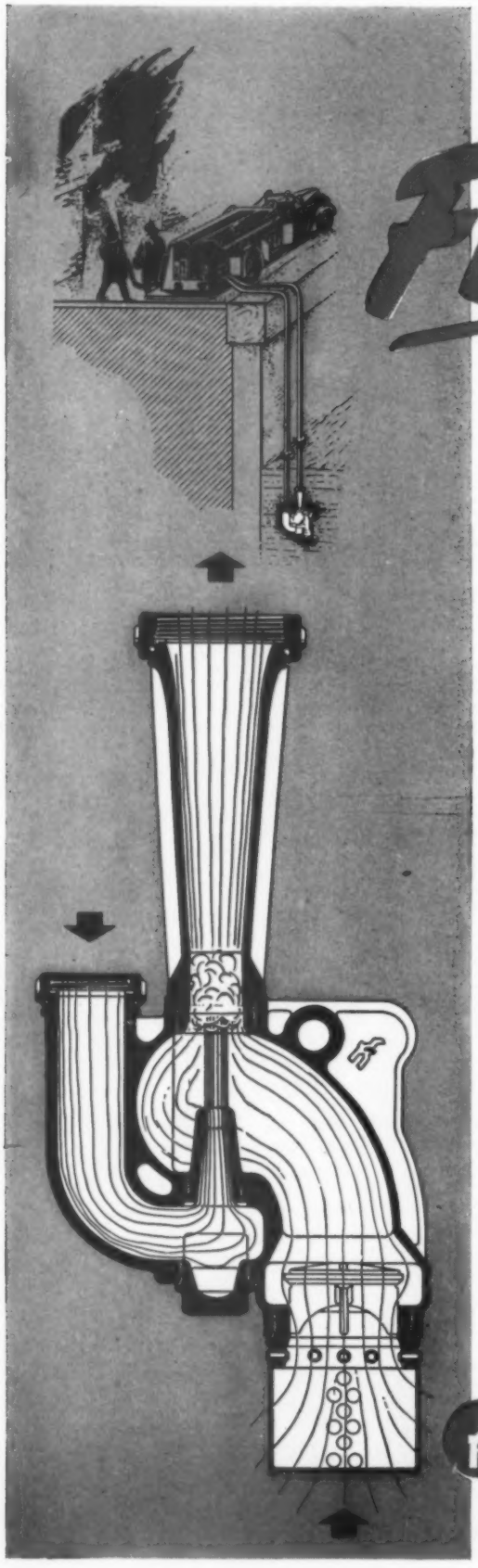
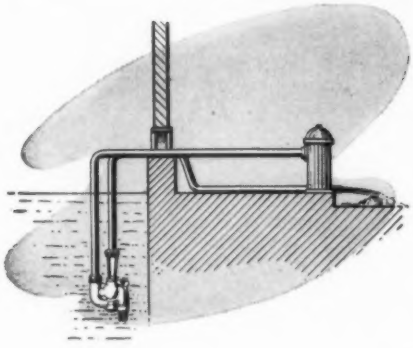


FIGHTS and FOLLOWS UP



THE SK Portable Jet Pump fights fire, with remote sources of water — and follows-up by removing the water that's trapped.

In the *fight*, it gives added lift to the pumper — to raise water from nearby lakes, rivers or streams. In the *follow-up*, it removes dirty water from cellars — without having this water enter a pump. In both cases, it gives "on-the-spot" service — efficient, effective, at once.

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Duo Safety All Aluminum* Fire Ladders are winning ever increasing recognition for meritorious service the country over. Fire Departments are adapting them as standard equipment for safety, as well as strength plus lightness. They feature no bending, loosening or weaving. Construction highlights include: tubular extruded or rectangular channel sections; double parallel fins, double set of truss plates; extruded tubing for rungs, heavily ribbed for sure gripping; rungs electrically welded to outside truss plates; pressed channel guides; and non-shearing steel rivets. Custom building such as this make this famous Duo Safety line worth of your trust and confidence. Look to Duo Safety for meritorious service!

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Tubular construction in 2 section lengths to 60 feet; 3 section in lengths to 65 ft; wall ladders in all standard sizes; roof ladders with roof hook, and folding ladders. Details sent on request.

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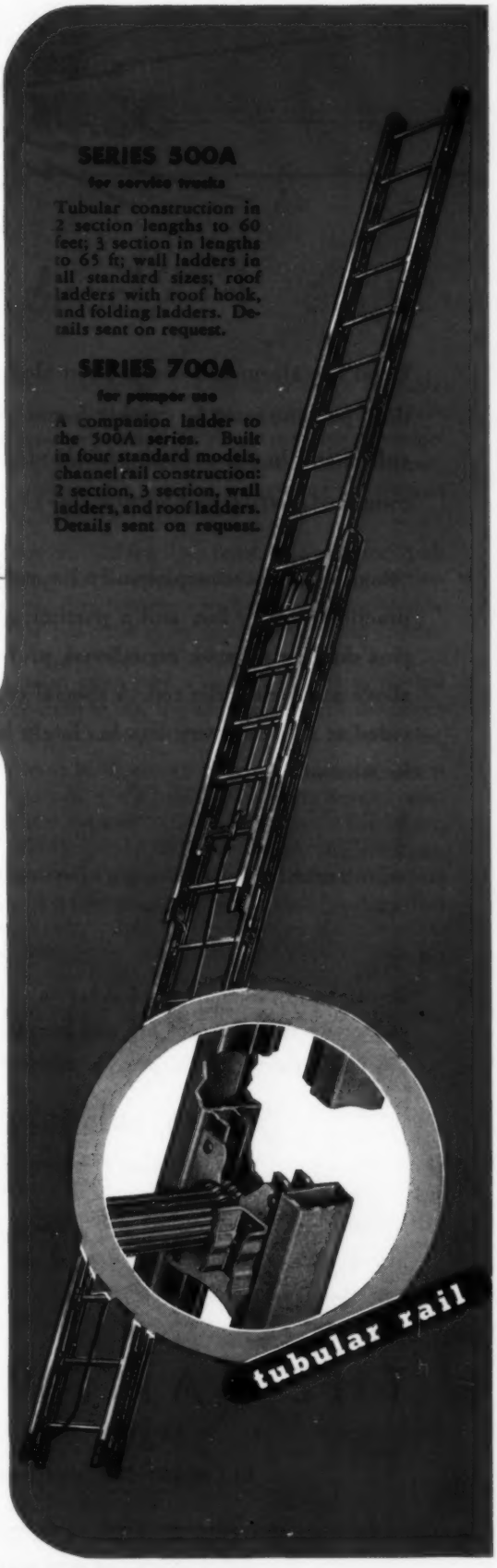
A companion ladder to the 500A series. Built in four standard models, channel rail construction: 2 section, 3 section, wall ladders, and roof ladders. Details sent on request.



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The FIRE ALARM FACTOR

Good fire alarm box distribution alone is not enough — the boxes in order to serve their purpose must be quickly found when needed. The Underwriters' Standards provide that a box should be *plainly visible from the main entrance of any building in congested districts* and Section 206-11 of the Standards also provides:

"Boxes shall be conspicuously located at street corners where practicable. The box and a portion of the supporting pole or post shall be painted 'Signal' red, preferably with white stripes above and below the red. A special colored light shall be provided at or near every box in closely built sections, to indicate location at night."

Excessive fire losses are almost invariably caused by delayed alarms. Why not investigate, in your city, the AVAILABILITY AND VISIBILITY of the means for sending alarms?

Remember, every minute of delay in calling the Fire Department accelerates the spread of fire and increases the fire loss — and that the municipality should provide adequately for the public safety.

Write for booklet entitled
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We survey cities and towns and prepare recommendations and estimates, without cost or obligation, at the request of any authorized city official.

The illustration shows the proper method of installing boxes — ON PEDESTALS WITH INDICATING LIGHTS

THE GAMEWELL COMPANY

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FIRE ENGINEERING

JULY, 1946 VOL. 99, NO. 7

With the Editor

How Long Will This Persist? Shortly after midnight on January 16, 1945, a roaring fire in the General Clark Hotel, Chicago, resulted in the death of fourteen persons, and injuries to eight others. About that time, hotel fires in Lima and Akron, Ohio, New Haven and elsewhere focused attention on this occupational hazard (as had numerous previous hotel fires which resulted in the loss of life).

Following the General Clark Hotel disaster there was the usual hue and cry by press and politicians for better fire prevention and protection practices and policies.

The fire department, which all-too-often suffers adversely from public reaction whenever such fires occur, pointed out that in the face of the then existing local ordinances and enforcement conditions it could do little to correct abuses, and Chicago's Chief Fire Marshal, Anthony J. Mullaney, was quoted as saying, "It is only a matter of time before Chicago suffers a major disaster."

Then, as usually happens, the tumult and the shouting died down. But the fire department and its fire prevention bureau, stubbornly continued to make its periodic inspections of fire hazards and to serve discovered violators of regulations with its warning notices. Just about as persistently, other persons and interests saw to it that the violations were pigeonholed. Nevertheless, the bureau persisted, reopening not a few cases that had been "soft-pedaled," by bringing charges on still other violations (or reopening the original cases).

Then came the LaSalle Hotel fire, followed in quick succession by Dubuque's Hotel Canfield debacle with eighty dead and over 220 injured!

At present Chicago and other municipalities are apprehensive from these catastrophies. There is the same old hue and cry by the press; the same old "investigations" (no less than seven separate ones on the LaSalle fire alone); the same old passing of the buck, and pointing at the other fellow by politicians and law enforcement agencies. Meanwhile, Chicago has buried one of its promising younger officers, Battalion Chief Freemon, killed in action, while many other firemen are nursing the scars of the nightmare LaSalle battle.

Thus-far nothing has come of these recurrent tragedies but charges, counter-charges and recriminations. Fire fighters who have devoted a lifetime to their job must suffer questioning—even inquisition—by investigators whose aim seems to be to whitewash some person or interest, not to dig out all the truth so that the long-existing evil conditions may be corrected in this occupational classification.

It must be discouraging to a fire service that is giving its all in the public's interest to have to operate under these conditions. How must a fire officer, or safety engineer feel when his recommendations are ignored or pigeonholed? What incentive is there for such a man to "stick out his neck," in the effort to stop these tragic fires before they start, or when fate does bring disaster—as it will—to risk his life and the lives of his men in meeting it?

How long will the business of fire control continue to be a political football?

All Aboard for the I. A. F. C. Conference! All details have been completed for the Seventy-third Conference of the International Association of Fire Chiefs, Cleveland, Ohio, July 23-26. An unusually strong technical program has been built up, and exceptional recreational features have been arranged. Be sure to be on hand! This will be the biggest fire protection event of the year!

Fred Shepperd

Chicago and Dubuque Hotel Fires Emphasize Laxity in Protection

Fire in "Fireproof" Hotel LaSalle Kills 61 Injures 200; Dubuque Firetrap Toll 19 Dead

By ROI B. WOOLLEY

Editor's Note: The nation's mounting toll of costly, fatal fires reached a new tragic peak in June when two hotel fires killed nearly 100 persons, injured nearly 250 more, some critically, drove hundreds into the streets and removed from the housing market badly needed living places.

It is safe to say that no one, including the sharp-eyed members of Chicago's Fire Prevention Bureau, who had clapped ten violations on the Hotel LaSalle prior to the fire, ever believed fire could practically wipe out five lower floors of that "fireproof hotel" with such deadly results. With the Hotel Canfield, in Dubuque, it was another story. The wonder is that it hadn't become a funeral pyre long ago.

Despite the dissimilarity in these hotels, there is a common thread of similarity running through both fires. Both had undergone so-called "modern improvements;" the fires started in about the same place or adjacent to the main lobby floors—in or near cocktail lounges; the times of both fires were almost identical—between 12 and 12:30 in the morning. In both, practically every room was occupied, and the fire, taking command of the lobby, cut off escape by way of the elevators and stairways, leaving to outside fire escapes and firemen with ladders and nets the task of safely removing occupants.

Lacking official and complete reports at this early hour, the editors have had to rely upon data received from correspondents, and news agencies. This fact is our only excuse for any omissions or errors that may be found in these accounts when all the facts are known. Our objective has been to bring our readers as students in fire prevention and suppression, those details about these two fires that will prove of greatest help when anticipating like conditions in their own municipalities.

FIRE, flashing with as yet unexplained swiftness through the lobby and lower floors of the 37-year old "fireproof" LaSalle Hotel in downtown Chicago, resulted in the death of 61 persons, injuries to more than 200, many of them firemen, and drove over 1,000 people into the street.

Perhaps never in the annals of the Chicago Fire Department were its officers and men faced with such an appalling situation as met them when they rolled in to the burning LaSalle soon after 12:35 A. M. on the morning of June 5.

The fire, which it is believed had been making headway in concealed spaces in a combustible wall and hanging ceilings of the Silver Lounge, and the Tonti Coffee Shop on the lobby floor, suddenly burst its bounds and, feeding on flammable furnishings and lacquer covered paneling, roared up open stairways to the mezzanine, and thence to the third, fourth and fifth floors, cutting off egress by elevators and stairways for the 1,100 guests above. Within minutes, the entire lobby and first three floors were engulfed in flames, and both of the main street entrances were impassible.

Arriving firemen were met by screams for help from guests who were trapped in their rooms, or believed so. Driven out by fire, or fear, some victims could not wait for resucers and jumped, or fell, while trying to scale the surface of the structure. White bed sheets, knotted into improvised life-lines, were flung out of windows or fastened to ornamental balcony railings. It is reported that by this means some persons worked their way down to floors where they were picked off by firemen who quickly laddered both the LaSalle and Madison street sides of the building.

Meanwhile other firemen, hindered rather than aided by willing, but excited volunteers employed life-nets to save an unnumbered total. Just as the Hotel Congress fire, in February, saw the effective use of scaling ladders in rescue work, so the LaSalle disaster witnessed the department's first large-scale use of nets in some time.

Crowds Hamper Firemen

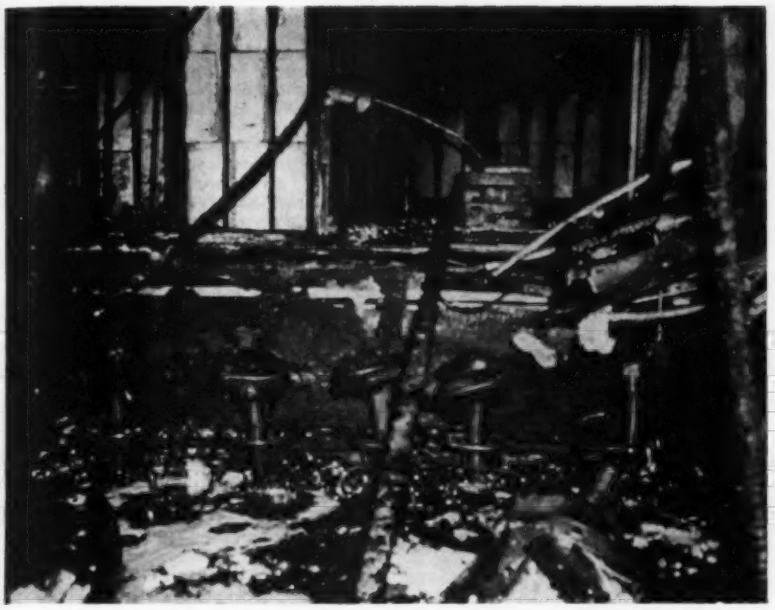
Firemen were hampered by the great crowds which grew as the news of the fire was broadcast, and as the city's nightclubs and restaurants were emptied. Some rushed into the hotel in misguided efforts at rescue.

Firemen had difficulty in reaching the upper stories of the hotel to locate overcome and injured guests and remove them to safety. The two fire escapes, both on the north side, rear, were carrying a seemingly endless column of descending tenants and volunteer rescuers. Members of the department, however, worked their way up against the tide, and by this means and via aerial ladders penetrated the smoke-choked floors above the fire where some of them collapsed and had to be rescued in turn.

Although the actual fire did not get above the fifth floor, the elevator shafts were scorched as high as the 19th floor. Hot smoke and gases driven up by the heat below, and drawn by the draft created by open guest-room doors and transoms, caught many victims in halls where, confused by the dark and panicked by fear, they were overcome and died. Many—the actual number is as yet unknown—were dragged out to be revived

Where Death Wore a False Front

Burned out lobby of the famous old LaSalle Hotel in which sixty-one perished June 5 showing part of cigar counter preserved amid almost total destruction of walnut paneling, ornate trim and lobby furnishings. Battalion Chief Freemon lost his life here.



Death Rang Up "No Change" on This Silver Lounge Cash Register

When is a "fireproof" hotel "flammable"? The answer is, when it installs combustible partitions, false ceilings, substandard wiring and modernistic flammable furnishings. Here's another view of the LaSalle's Silver Lounge bar, after the fire that killed 61, injured 200.

by firemen, police and medical attendants, working feverishly with inhalators, which were rushed to the scene in response to the special calls to fire alarm headquarters.

Many Saved by Ladders

The longest ladders in the department were able to reach floors just above the fire and it is reported that over fifty persons, many of them women, were removed down these.

The size of the hotel, the number of persons to be removed, the extent of the building area to be laddered; the imperative need of getting some firemen to the upper stories and roof for ventilation, and to keep the fire out of the 21st floor, with its paint and carpenter shops, and at the same time to control the fire in the lower five floors, posed an almost unprecedented problem for the fire-fighters.

They had the fire under control by 3:30 A. M. but it was many hours before all rooms, halls and stairways had been searched and all victims removed.

A temporary morgue was hastily set up at the City Hall, nearby, where injured were cleared for hospitals and bodies were taken and efforts made at identification. It was several days before this was completed, due primarily to the fact that most victims were caught in nightclothes or had no means of identification. Further complications were caused by the destruction of the hotel's register and the fact that personal belongings of many victims were destroyed or lost.

Red Cross workers and members of local and county groups aided the 600 policemen in helping restore order out of chaos, locate and tabulate the victims and casualties, and notify relatives of the dead and injured.

From available medical reports, the majority of the victims died from suffication induced by carbon monoxide poisoning, according to J. J. Kearns, chief pathologist for Coroner Brodie, of Chicago. Just how many were killed or injured by falling or jumping is not known at this time but press accounts set the number from six to fourteen. It is believed many were killed by falls resulting from their efforts to make their way down the face of the building or from window to window.

Dr. Ralph W. Taraba, physician, who received the alarm over a police radio in his home and responded on the "5-11", says that death came speedily to many victims because they opened the doors of their rooms, permitting superheated air to enter their lungs, making them virtually unfit for further breathing and inducing a state of shock closely followed by death.

According to the doctor, who applied artificial respiration to victims on the seventh floor, the most surprising aspect of the fire was the number of victims who apparently died in their rooms, some in bed, although their rooms showed no trace of fire. Undoubedly he added, they were ones whose room doors had been opened, admitting hot air and smoke, which cut them down where they were.

Battalion Chief Freemon Dies

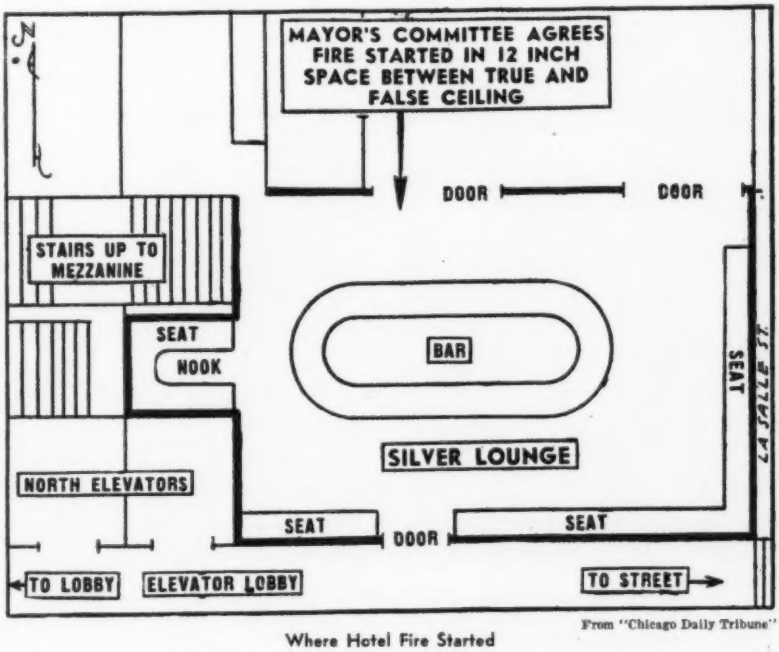
Battalion Chief Eugene Freemon, 55, the only fireman who perished, although thirty were reported injured, was the official who ordered the extra alarm turned in for the LaSalle fire soon after arriving, following the first telephone alarm for the blaze received by the fire department telegraph bureau.

Chief Freemon, only recently returned to the department following service in the Navy, was the first-due chief at the fire. His size-up of the situation was quick and accurate. He led his forces into the lobby where it is reported he was fatally injured by collapse of a part of the mezzanine floor.

Hotel Considered "Fireproof"

The LaSalle Hotel, erected in 1908 and 1909 as "The largest, safest and most modern hotel west of New York City," according to its prospectus, is located at the corner of LaSalle and Madison streets in the heart of Chicago's financial district, within the city's Loop.

The building was "of fireproof construction," being built of steel, concrete, Bedford Stone, granite, brick terra cotta, marble and tile. It cost $6,500,000 exclusive of land; is 22 stories in height and contains 1,048 rooms, of which less



From "Chicago Daily Tribune"

Where Hotel Fire Started

Layout of LaSalle Hotel lounge bar and adjoining lobby, showing where investigators believe fire started.

Death Stacks the Cards at the Hotel LaSalle

Flame "passed," but smoke and carbon monoxide dealt death to two luckless card players, trapped in a third floor card room of the hotel shortly after midnight, June 4. One victim had just phoned his wife he "would be home right after this hand."

than 900 are said to be allocated for guests. These rooms are on the 3rd to 18th floors; the 19th and 20th contain the Grand Ballroom and Century Room. On the 21st floor are located the carpenter, paint and other shops (here too, carpets were stored and cleaned). A basement and sub-basement extend for some distance below street level.

The hotel has two outside fire escapes, both located on the north side of the building. There are stairways extending the full height of the building leading from the mezzanine, which is reached by broad open marble stairways on both sides of the lobby behind the elevators all of which are enclosed. A wrought iron railing extended around the mezzanine.

Under the present building code the old open type stairways used in the hotel are not permitted. The code was not retroactive, however, and no construction changes were required of the hotel when the code was adopted.

In 1936, upwards of $200.000 was spent on a modernizing program at which time changes were made in the main floor and the lobby. It is understood the lobby's dark walnut panelling was installed at that time, together with the "dummy" elevator doors.

The lobby, which is of considerable extent was, with the mezzanine, furnished with upho'stered furniture and heavy floor coverings. The cigar, gift and other counters on the lobby floor were said to be of combustible material and contained combustible stock, although they were not completely consumed by fire.

The Hotel's famous old Blue Fountain Room and roof-garden were gathering places of many notables in earlier days. The Silver Cocktail Lounge, Tonti Coffee Shop and American Room were products of later years, the Lounge in particular being fitted with modernistic furnishings.

It was in the modernization of the lobby that the hollow partitions and false ceilings involving the Silver Lounge and coffee shop where the fire is said to have originated were installed.

Outside of several tiers of rooms on the LaSalle and Madison streets sides, were located narrow balconies with ornate iron railings. Some hotel guests attempted to descend from balcony to balcony by means of knotted bedsheets.

Hotel Had No Sprinkler System

The LaSalle is reported to have had the resquisite fire protection facilities for a structure of its type and occupancy. It was equipped with regulation standpipes, as prescribed by city ordinance for all public buildings more than 80 feet high. Small hose and open nozzles, attached to valved outlets, were located on each floor.

The hotel was equipped with regulation fire extinguishers, but the evidence indicates there was some doubt over their location—or the knowledge of their location—on the lobby floor. Testimony is said to have indicated that not a single hotel fire extinguisher was used by employes, although "amateur firemen" attacked the blaze in the lounge with improvised "extinguishers."

There was no sprinkler system in the hotel and Elmer J. Reske, fire protection engineer, who headed a special committee appointed by Mayor Kelly to conduct an investigation, is quoted as saying than an automatic sprinkler system in the hotel would have averted the loss of life.

The Management's Statement

The management of the hotel, taking recognition of the reported violations in effect at the time of the fire, and the criticisms of guests and firemen said in a statement:

"It (the hotel) maintains that every precaution had been provided for the safety of the public and categorically denies published statements that the hotel had failed to comply with orders of the fire department in safeguarding the premises.

"Regular inspection was carried on even beyond the requirements of the law in assuring that all equipment was in perfect condition to meet any possible emergency. Provisions of the order issued by the fire department May 10 were carried out, including those relating to sprinklers.

"The chemical fire extinguishers throughout the premises had been recharged as recently as two weeks ago. Fire drills had been conducted monthly among the employes. The practice of dry cleaning on the premises had been discontinued more than a year and a half ago.

"The fire escapes were completely checked three weeks ago. The elevator shafts were regularly inspected by our own engineers and by the insurance company inspectors and were kept spotlessly clean. In fact, every precaution had been taken to insure the safety of our guests and the public.

"Investigation will reveal that panic and heavy smoke caused more death and injury than actual fire. More than 1,000 people were evacuated from the building to safety via the fire escapes, which indicates that all such equipment was in perfect and serviceable order."

Fire Department's Letter on LaSalle Violations

In view of the statement of the hotel on the subject of its fire protection and prevention the following communication from the fire department to the hotel management concerning violations is interesting.

Besides directing the recharging of extinguishers, other steps ordered to correct violations in the fire prevention bureau's letter were:

"Store all flammable liquids within flammable liquid storage room on the 21st floor.

"Install sprinkler heads in spray booth located on the 21st floor. Sprinkler heads must be supplied by an adequate pressure and water supply.

"Remove 55-gallon drum of flammable liquid used for dry cleaning upholstery in carpet storeroom on 21st floor.

"Discontinue the practice of dry cleaning on the premises.

"Remove all waste paper from combustible container in stairwell at north west corner of courtway on 21st floor. Provide metal container with self-closing cover for refuse purposes.

"Treat all draperies in Grand Ballroom and Century Room on 19th floor with a flame retardant solution or process to render such material fireproof.

"Limit the combustible draperies to 5% of the wall area of the Grand Ballroom and Century Room.

"Provide an automatic or self-closing device on all doors of dummy elevators in northwest section of premises.

"Provide an automatic sprinkler head, for area in sub-basement at bottom of rubbish chute."

Evidence of Delayed Alarm

That there was a delay in reporting the fire to the fire department appears evident from the testimony of fire department and hotel employes. The testimony of the latter tends, also, to substantiate what many firemen have long maintained was a cardinal fault in handling hotel fires—the tendency on the part of hotel management and employes to attempt to extinguish the fires themselves rather than to immediately summon the fire department.

Although certain hotel workers maintained there was no negligence and that the fire was reported between 12:25 and 12:30 A.M. immediately after the fire was first seen, the fire department records, and the evidence of other hotel employes, puts the outbreak of the fire at about 12:15 whereas it was not reported until ten or fifteen minutes later.

In a four-hour examination of 35 hotel employes by Henry Eckhardt, in charge of fire investigations, at least five key witnesses indicated that the fire was discovered between 12:15 and 12:20 A.M. It was reported to the fire department at 12:35 A.M.

The operator of elevator No. 4, Edward Kowalske, located just west of the dummy elevator door, was positive about the time—12:15. He reported the fire, then at the base of the dummy elevator, to the acting bell captain who was sitting about 100 feet across the lobby from the blaze. According to the testimony, when Kowalske told the man on duty to call the fire department, "he said he would call the engineer to bring up a fire extinguisher." By the time the engineer came up with the extinguisher the Silver Lounge and one elevator was ablaze, and furniture in the lobby was burning.

A waitress places the time as later. She stated that "around 12:30" one of three guests sitting around a table in the alcove just back of the dummy door discovered fire under his seat and that she ran to officer McNamara and reported it and when she returned she saw the bartender using seltzer-water bottles on the fire which, in a matter of seconds involved the entire south end of the lounge.

The acting bell captain, testified that he called the engineer instead of the fire department when Kowalske reported the blaze, and he is quoted as saying "it's a matter of custom. . . . only the house officer or the manager has the authority to call the fire department." In his two years at the hotel, the bell captain said, there had been two or three small fires and that the department had been called once.

This is in conflict with the testimony of Henry Eckhardt, city assistant corporation counsel, who is quoted as saying that one of the witnesses in his investigation told him the hotel had experienced approximately twelve fires during the past year but that the fire department was summoned in only four instances. He said further that it had been the hotel's policy "to fight blazes without the fire department aid in order to avoid possible panic among the guests."

Cause Attributed to Faulty Wiring

Although as yet officially unconfirmed the fire is believed to have been caused by substandard wiring in a concealed space either in the hotel's Silver Lounge on the east side of the hotel, north of the LaSalle street entranee, or in the adjoining Tonti Coffee Shop, to the north.

Evidence has ruled out contentions that is started (a) from sparks from an elevator signal cable; (b) a cigarette in the lounge; (c) gas which had entered the hotel from gas mains in an alleyway.

Fire Captain Frank A. Thielman, assigned to Fire Commissioner Michael Corrigan's staff, who investigated the cause of the fire, said that in his opinion, the fire originated from "crossed wires" in the air space, measuring from 12 to 18 inches in depth, in the ceiling of the Silver Lounge. This space was left there some years ago when the lounge was remodeled and finished in walnut paneling. It extended along the ceiling and also between the walls where similar panels were installed.

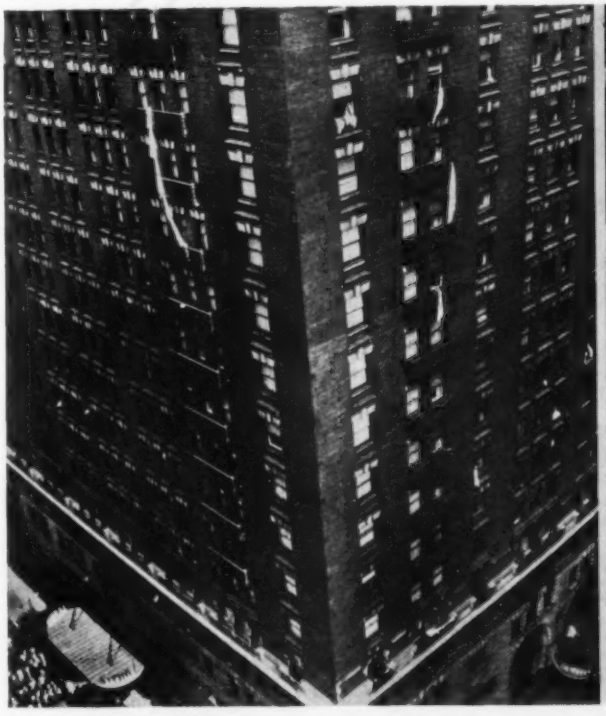
This false ceiling was pointed out to an aldermanic investigating committee by Chief Fire Marshal Anthony Mullaney, along with the wall of frame woodwork which ran between the lounge and adjoining coffee shop. The electric wiring which ran along the false ceiling atop the loung and adjoining coffee shop was substandard, having no effective protective covering except the customary thin fibre and rubber installation. This wiring was not enclosed in metal conduits, it was disclosed. According to Chief Marshal Mullaney, a considerable amount of this substandard wiring was found throughout the hotel.

Wires from an FM radio set ran inside the partition, and it was said that the set had been running hot for some time before the fire, although there is no conclusive evidence to establish this set as the cause of the fire.

Marshal Mullaney showed the committee a hole burned in the frame wall, and wood sections of it more heavily charred from the fire than at other points which indicated that the fire had centered at this location. Evidence of the extreme heat at this point was found in the fact that 20 metal trays, which had been leaning against the wall, had had their tops burned off.

This wooden wall, between lounge and coffee shop, was about two feet wide and entirely hollow and concealed air ducts which were a part of the air conditioning system, as well as the FM radio set with its wiring.

Until all the evidence has been weighed it will remain somewhat of a



"Bed Sheet Life Lines" Are Mute Evidence of Panic

Some Hotel LaSalle guests assayed escape from upper floors by using knotted bed sheets. Ironically enough, their descent only brought them nearer the fire. Illustration shows intersection of LaSalle and Madison Streets. The only evidence of fire in the building is discoloration below the fourth story ledge.

Fire Escapes on Hotel LaSalle Kept Down Death Toll

Guests in various garb trail down hotel's fire escape to safety. Counterweight for drop-ladder is shown at bottom left. Note also fire department standpipe, left center. Window's back of the escape are wired glass.

Near Scene of Start of Fatal Hotel LaSalle Fire That Killed 61

Wreckage of Silver Cocktail Lounge showing burned bar and fixtures and remains of combustible false-ceiling and partitions, with air conditioning duct (upper left) which helped spread the fire.

mystery as to why and how the fire made such headway throughout the lobby and up through the first five floors of the structure.

According to Captain Thielman, whose report is concurred in by Chief Marshal Mullaney, after starting in the ceiling, the fire apparently burned for some time until it extended down into the walls. Sparks, which were seen in an elevator shaft adjoining the wall of the lounge, may have been communicated to it through openings in this wall.

Eventually, it is said, the flames heated the walls of a corner booth in the cocktail lounge and sparks and smoke shot out when a cushion was lifted. When employes in the lounge discharged seltzer water onto the burning seat, they were far removed from the real base of the fire.

After accumulating for some time, the fire spread with almost explosive speed when it got into the open and fed on the wood veneer and varnish of the paneling, according to fire department reports.

In his comments Chief Marshal Mullaney said "the way the walls and ceiling were laid out; the substandard wiring; radio; the air ducts in the wall—all could have contributed to the fire" and he added "air conditioning, for example, is supposed to be a help to mankind. Actually, it can be a curse."

Investigators stress the way the walls and ceiling had been laid out to include the air conditioning system in the hollow walls. This was done about seven years ago, it was said.

Chief Marshal Mullaney also called attention to the hole, once covered by a louvre, leading from the Silver Lounge into an elevator shaft, in which the elevator had been fused to the shaft at the third floor by the intense heat. As high as the hotel's third floor, Mullaney explained, corridor walls were charred by super-heated air, but rooms opening off the corridors, in which the transoms had been closed, were little damaged. Other rooms whose transoms had been open were blackened and charred.

Attention was called to the melted glass on the second and third floors. This indicated that the fire had developed a temperature in these areas of at least 1,400 degrees F, as glass does not melt readily at lower temperatures. Further indication of the intensity of the fire was indicated by the reduction of marble on the main stairways to powder, and by the breaking of a steel beam, from heat, between the third and fourth floors. The condition of certain bodies also indicated the speed with which the fire trapped and burned victims.

The testimony of hotel employes and patrons pointed to the almost explosive spread of the fire, once it had broken out of the concealed spaces.

Employes of the cocktail lounge told of overturning cushions against the wall extending to the dummy elevator and finding them in flames. All the evidence attested to the explosive-like spread of the fire —"so rapidly that employes had no opportunity to fight it with extinguishers at hand."

Department Responds to "5-11" and Six Special Calls

Approximately 300 firemen, manning 65 pieces of fire fighting equipment, fought the fire, and engaged in the rescue work.

According to William Sheridan, chief fire alarm operator at fire alarm headquarters, the alarms for the Hotel LaSalle fire were handled in the following chronological order:

12:35 A.M.—First "still alarm" telephoned and Engine 40 (the nearest company) responded.

12:39 A.M.—Fire alarm box on Madison near Clark streets was pulled.

12:40 A.M.—"2-11" alarm transmitted (understood to have been ordered by Batt. Chief Freemon, who died shortly after).

12:45 A.M.—"5-11" alarm transmitted.

In addition to these calls, six special calls were received at fire alarm headquarters and transmitted following the "5-11". Most of these were for resuscitation forces and squad cars.

By 2:10 A.M. according to Sheridan, the fire department had 65 pieces of apparatus of all kinds on the scene, while many other companies were relocated to cover areas left unprotecetd by the movement of units to the fire.

Losses and Insurance

Thus far no estimate of the damage to the hotel has been advanced by hotel authorities. Fire department estimates ranged from $100,000 up. Present unofficials figures place the loss to the structure at about $200,000. Just what the other losses will amount to cannot be foretold.

Insurance held by the hotel, it is said, will cover loss of possessions by guests and relatives, and medical and other expenses, death and injuries, according to Joseph T. Scott, attorney for the hotel.

The fire coverage on the building was $1,500,000; $300,000 on contents and $150,000 use and occupancy coverage. According to The Weekly Underwriter, the loss on building and contents is believed to be amply covered, although the damage to contents may be high because of the excessive smoke. The use and occupancy loss may also run to a substantial sum.

Hotel Had Ten Violations

At the time of the fire, the Hotel LaSalle is reported to have been operating notwithstanding a number of violations of the fire prevention code which had not been corrected.

On May 10 last, as previously set forth, the hotel was notified of 10 violations. Six of these, including the storage of flammable liquids, accumulated waste paper, the operation of a cleaning plant and uncharged chemical fire extinguishers, had been corrected by May 24 at which time Fire Captain Frank A. Thielman of the Fire Prevention Bureau reported that the hotel was working on two others—installation of sprinkler heads and self-closing doors. The two violations which had not been corrected were an excess of combustible draperies in the Grand Ballroom and Century Room and failure to treat these draperies with flame retarding solution.

The Chicago Fire Department's Fire Prevention Bureau is said to employ 43 full-time inspectors. Besides making annual inspections of all hotels, they make daily cursory inspections of all "public places of assembly," including hotel night clubs. According to Division Marshal John L. Fenn, head of the Fire Prevention Bureau, many Loop and near-Loop hotels had long-standing violations of fire laws still uncorrected at the time of the fire and the city had been forced to take court action against the hotels in many instances to gain corrections.

Fenn's records disclosed that at the time of the fire nine downtown hotels had fire violations still pending and the city had filed suit against three of the nine to force them to correct fire hazards.

Fenn said the Bureau's proceeding was to send a letter to the hotel notifying the owner of the violation and giving him 15 days to make corrections.

Another 15 days is allotted, and then the Bureau asks the corporation counsel to take legal action. Many of the lawsuits are continued repeatedly while the fire hazard remains uncorrected, he said.

Some justification of the situation in which a number of hotels have found themselves is advanced by Chief Fenn who explains that "lack of 'critical' materials caused many, eager to co-operate in fire prevention, to fall 'many years behind'."

Surveys Disclose Many Violations in Other Risks

Hotels in and near Chicago's Loop district received immediate attention from the city's fire inspectors, following the LaSalle fire. The newspapers, aroused, encouraged inspections of hotels, night clubs and convalescent homes. Many papers conducted their own surveys of fire hazards and found evidences of violations. On Wednesday, following the fire, city officials announced that two theatres and five night clubs would be closed. Equally as sudden, the ban was lifted on one theatre, and some of the night spots were permitted to operate, without entertainment. Firemen were detailed to the theatre in question. Seven convalescent homes were threatened with closure.

Still later one hotel was ordered closed and its 100 tenants evacuated, when it was learned that it had 25 violations of fire and building codes. Some of its tenants refused to be dispossessed until the courts legally ordered them out.

The Cafe Owners Association and other groups protested what they termed the summary action taken by the city.

Among the more important life and property hazards unearthed by the investigators in Chicago were these:

Insufficient emergency exits.

Access to fire escapes blocked entirely, or made difficult by locked doors; barred windows; openings leading into hotel rooms, not hallways.

Fire escapes improperly located (subject to exposure hazards and dead ends). Fire escapes lack protective paint.

Lack of fire escapes.

Insufficient stairways. Open stairways and stairways of combustible material. Stairways not leading to the street or other hotel exit.

Excessive decorations in stairways. Stairways blocked by furniture or other combustibles. Unlighted, or insufficiently lighted stairways.

Rubbish accumulations in basements and closets. Failure to provide metal containers for refuse.

Improper storage of flammable liquids. Large cans of insecticide exterminator stored in closets beneath combustible stairs.

Inflammable paints and painters' supplies stored beneath wooden stairs. Oily rags in closets.

Standpipes missing. Standpipes not equipped with hose. Nozzles missing. Hose rotten and disintegrating.

Hose and fire appliance cabinets locked.

First aid fire appliances missing (extniguishers, axes, etc.) Fire extingiushers not re-charged (inspection tags missing).

Lack of automatic fire doors. Doors not working (blocked or defective).

No fire resisting doors for linen elevator.

Gravity tank not filled.

Re-plastering needed. Broken plaster between floors would allow draft and act as flue in case of fire.

Exit signs and lights missing or undistinguishable.

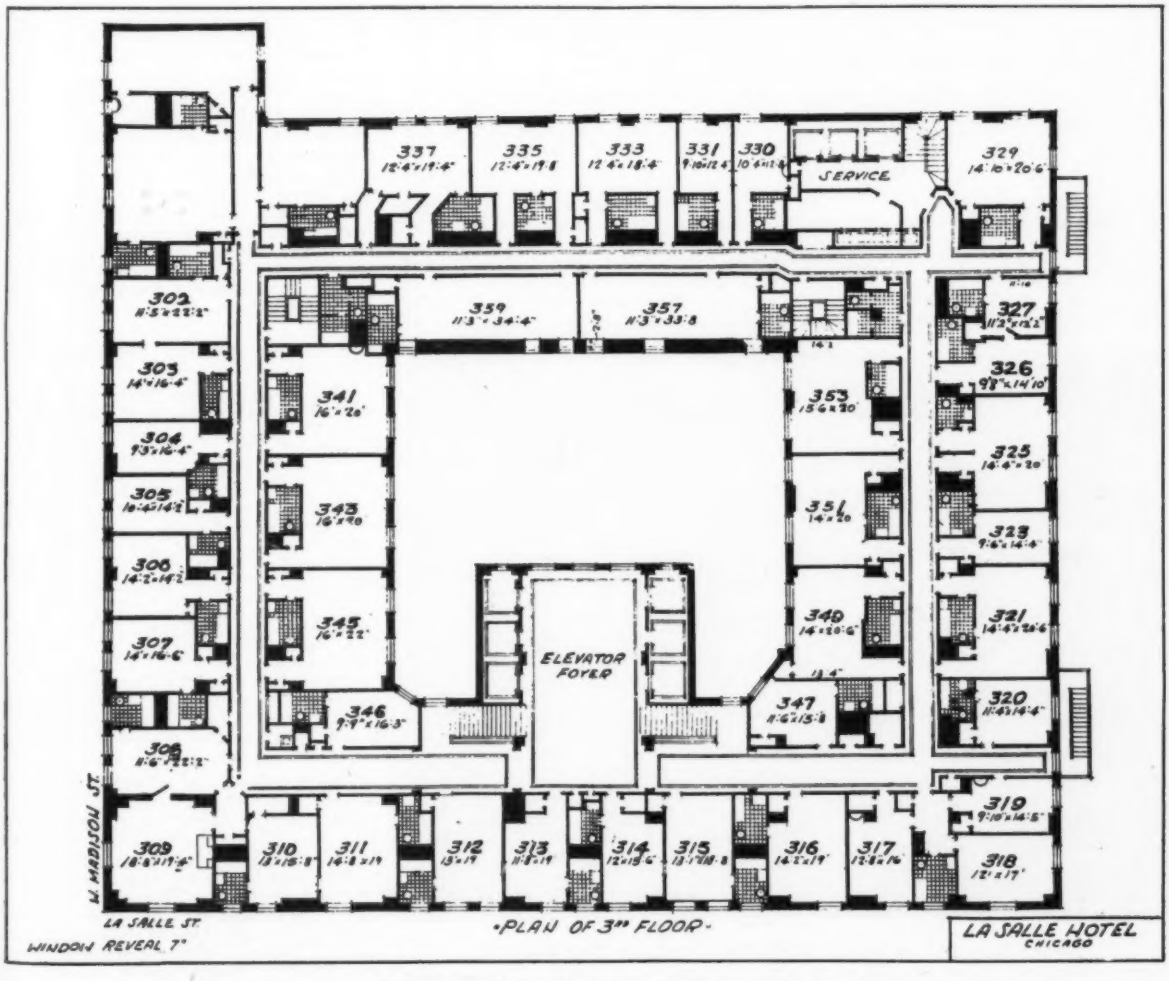
Lack of auxiliary fire pump.

Locked street doors at night.

Combustible scenery and decorations.

Wooden bins for sawdust in carpenter's room.

Excess combustible draperies and furnishings. No fire repellant used for flameproofing.



Plan of Third Floor of LaSalle on Which Most of the Deaths Occurred.

Careless or improper operation of cleaning plant.

Fire department connections out of order.

Inadequate, or no watchman's service.

No sprinklers (particularly in basement, boiler rooms, paint and carpenter shops).

Lack of building fire alarm signal stations. No alarm bells or signals.

Structural Defects Prevalent

Of the factors contributing to the rapid spread of hotel fires, defects in construction ranks foremost in the older hotel establishments. Most serious defects are: open, unprotected elevator, stair and dumbwaiter shafts; lack of fire stops at base and top of interior partitions and at flue, and pipe and chimney openings.

Excessive use of combustible materials in construction and furnishings, with unprotected vertical openings account for the rapid spread of fires and heated gases in old type structures. Even in so-called "fireproof" hotels, the danger of heated, toxic gases being distributed by unprotected floor and other openings exists.

The National Board of Fire Underwriters makes these recommendations to make existing hotels safer from fire and to protect the lives of guests:

1. All extensive areas should be broken up by substantial fire walls. These walls should be fire-stopped at floor and ceiling and equipped with approved fire doors.
2. All open stairs and elevator shafts should be enclosed. Where this is not feasible from a construction standpoint, sprinklers should be installed.
3. Wired glass should be installed in all windows in walls exposed to risk from neighboring property.
4. Light wells, which may allow accumulation of heated gases, should be roofed over at every floor. Attics and concealed spaces on roofs should be sprinklered.
5. Where fire stops have not been provided, the best arrangement is the installation of horizontal exit partitions to remove guests to an area of safety. In the case of the non-fireproof buildings, these partitions can be supplemented by outside smoke proof towers entered by means of an outside balcony.*

Other Fundamental Factors to Consider

Several other factors should be considered in connection with safeguarding hotels and guests from fire. These are (1) Adequate measures for prompt detection of fire; (2) For quickly and accurately transmitting alarms of fire to the municipal fire department, or central station protective service, or both; (3) For promptly and effectively notifying employees and occupants of the hotel, of fire, and (4) For insuring that proper measures be taken to control the fire in the interval between transmitting the alarm and the arrival of the fire department.

*Booklet "Fire Prevention and Protection as Applied to Hotels"—The National Board of Fire Underwriters, 85 John St., New York, N. Y.

For the foregoing, the measures for detecting fire; promptly notifying both occupants and fire alarm bureaus are too well known to require recounting here. Detection of fire; notification of authorities and transmission of alarms may be done manually or mechanically (automatically). The progressive hotel will, like the progressive industrial plant, no doubt adopt the best measures to meet its requirements.

The problem of the measures to be followed in controlling the fire involve policies— and personnel. Unless the hotel adopt a policy of enlisting the full and immediate cooperation of the municipal fire forces, any fire protection program is foredoomed for failure, sooner or later. Is is bad enough for a hotel to refuse to install fire detection and extinguishing systems, but it is even worse for it to *invite* disaster by attempting to fight its own fires.

If hotel employes are to attempt to fight fires, and inaugurate fire prevention work, they should perform such duties under capable, intelligent direction. Which again leads right to a higher degree of cooperation between hotels and fire service.

SECOND HOTEL DISASTER TAKES 19 LIVES

THE nation's second major hotel disaster in four days killed nineteen persons and sent twenty-three others to hospitals with injuries and burns when the Hotel Canfield, in Dubuque, was virtually destroyed on Sunday morning, June 9, 1946.

The hotel, the second largest in the city of 44,000, was located at Fourth and Central avenue in downtown Dubuque, and was built fifty-five years ago. A six-story annex was added in 1925 to the original structure, and connected to it by means of hallways and openings, protected by fireproof doors. The original part was four floors in height and of mill-type construction with brick walls. The newer annex, also of brick, was of fireproof construction, six stories in height. The original section contained 200 rooms and it is reported that the morning of the fire there were 129 guests registered. Both William Canfield, Sr., 75-year-old co-owner of the hotel, and his wife, died from the fire.

The first unofficial estimate of property damage to the hotel building is placed in excess of $225,000. It is said that insurance coverage of more than $300,000 was held on the Canfield hotel in policies taken with fifteen companies. Insurance, it is reported, will not nearly cover the total losses involved, including the personal property destroyed or lost, not included in the building itself.

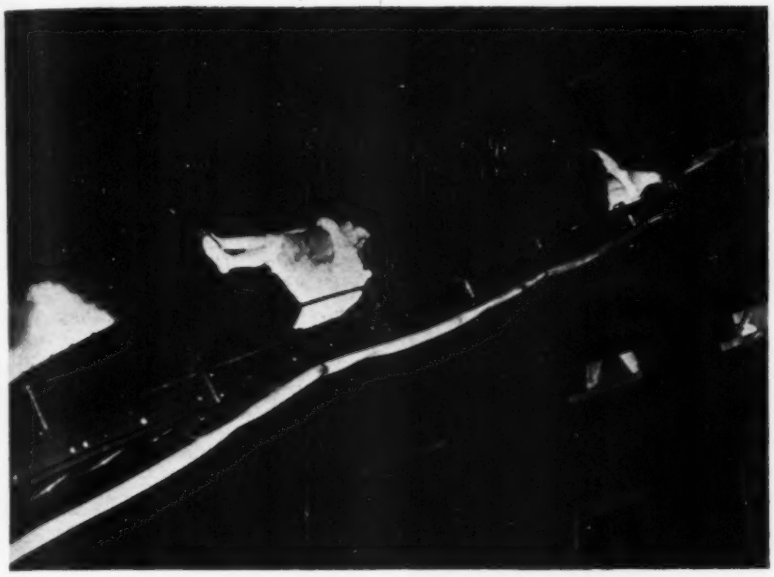
Where Many Died in Burned Out Corridor of LaSalle's Third Floor

Severity of the fire is evidenced by burned out doors and trim, spalled walls and ceiling. Unused hotel hose hangs at left. Heaviest loss of life occurred on this floor.

Cause Believed Cigarette

John Strohm, Iowa State Fire Marshal, following consultations with Deputy Fire Marshals A. A. Lubberden and Zack Cook, H. J. Corcoran, Iowa Insurance Service Bureau engineer, and Fire Chief Perry H. Kirch, head of the Dubuque Fire Department, expressed the belief that the fire was caused by cigarette stubs tossed into a cardboard container in a small storage room of the "Red Lounge" tavern adjoining the hotel lobby. It did not start in the basement, according to Lubberden. "A new waitress had been working in the Red Lounge only a few days," he said. "She had been instructed by the bartender to pick up the cigarette stubs and napkins from the tables and put them in a cardboard container in the storage room where the employes hung their coats."

The questioning of witnesses brought out the fact that the bar closed at midnight, but a few people were still there. Two couples, who had called to see William J. Canfield, Jr., the manager, were told to wait in the cocktail lounge until he could see them. They went into the lounge, witnesses say, and started playing the juke box. One of the party commented, between juke-box numbers, that she heard a "funny" noise, something like crackling paper. She thought it



Dubuque Firemen Make Double Rescue of Hotel Canfield Victims

Trapped guests removed to street via 75-foot aerial of Ladder Co. 1 as flames roar through roof. Firemen were forced to suspend fire fighting for rescue operations (see also cover).

might be a mouse. One of the men investigated and found flames in the storage room.

Fire Spread Furiously

According to Chief Kirch's report to FIRE ENGINEERING, the fire spread from the closet (storage space) off the Red Lounge, flared through the lounge itself and reached the hotel main floor by means of a doorway leading into the lobby of the hotel. It then advanced up an open stairway adjacent to the wall separating the Red Lounge from the lobby. This stairway was approximately ten feet from the doorway separating the Lounge from the lobby.

Much as in the Hotel LaSalle fire, the progress of the blaze was accelerated, once it had reached the lobby. According to Chief Kirch, the fire rapidly advanced across the lobby to the elevator shaft, up which it shot, and it was a matter of minutes before the elevator penthouse on top of the four-story part of the hotel was in flames.

A further indication of the rapid spread of the fire is shown by the fact that the night clerk on duty had no chance to escape through the hotel's main entrance, and was forced to descend a stairway into the basement and traverse it to an exit in the rear of the building.

Again, as in the case of the LaSalle fire, advancing flames proceeded up the stairways leading from the lobby. In the Canfield Hotel, with much more flammable material to feed upon, they burned upward unchecked, to mushroom out on the upper floors. As they advanced they pushed heated smoke and gases ahead of them, through all vertical and lateral openings, either to lay low the guests who had fled their rooms, or to trap those who had remained within them, leaving the latter but one means of exit—the windows.

The speed with which the flames tore through the old hotel's four floors and roof area is evidenced in the report of Lieut. W. Blaser of Engine Co. No. 5, which responded on the general alarm, transmitted soon after the initial call. He stated to Chief Kirch that when the company left its quarters approximately one and one-half miles distant from the fire, they could see flames already shooting out through the roof.

Futile First Efforts to Fight the Fire

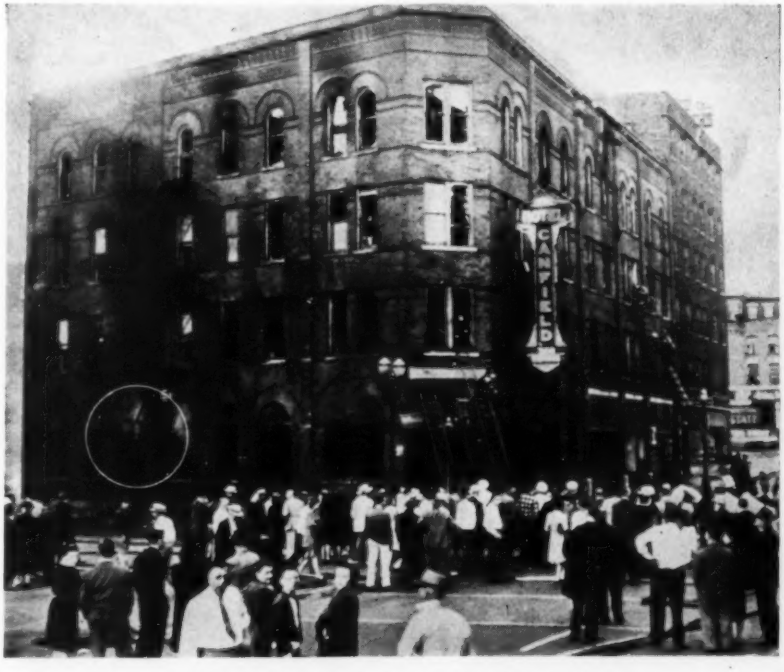
It is disclosed that following discovery of the fire by the young people, one of the men got an apron, or rag, at the bar and tried to beat out the blaze. Another ran for a fire extinguisher, while another couple went for a bucket of water, but the flames were making headway across the ceiling and walls by the time they were back. Meantime, notified of the fire, Manager William J. Canfield, Jr., rushed to the second floor for a fire extinguisher. When he came back the flames had gained such headway that the individual fight was abandoned.

Although there was this abortive attempt to extinguish the fire, all the testimony of witnesses indicates that there was no appreciable delay in calling for help. John Becker, a hotel clerk, said he heard Manager Canfield yell "fire!" and that he, Becker, immediately rushed to a telephone and called the fire department. He said no more than thirty seconds elapsed between the discovery of the fire and the call to the fire department. However, he believes that the blaze had made considerable headway before its discovery.

According to Chief Kirch, a telephone and a box alarm were sounded simultaneously, at 12:39 A.M. The telephone alarm came from the Red Lounge of the Canfield Hotel, and the box alarm from Box 128 at Fourth and Central ave. across the street from the hotel.

General Alarm at Once Radioed from Chief's Car

The initial response by the fire department brought Engines 1, 3 and 4 and Ladder 1 with Assistant Chief Harold Crosgrove in command. Immediately upon his arrival, the chief instructed his driver William Stoltz to sound a general alarm over the two-way radio system in the chief's car (12:42 A.M.) This brought the Chief of Department, Perry H. Kirch, Engines 4 and 5 and the entire



Dubuque Hotel Fire Leaves 19 Dead, 23 Injured

Similar in many ways to the Hotel LaSalle fire, four days before, was burning of 55-year-old Hotel Canfield, Dubuque's second largest hostelry. Firemen saved 27 by life net, 35 via ladders. Circle indicates where flames from lounge enveloped and blocked fire escape, killing one. Newer annex is shown at right.

Difficult Task of Removing Fatally Injured Wife of Hotel Co-Owner

Mrs. Wm. Canfield, Sr., being lowered in stretcher over canopy of gutted Hotel Canfield. Mrs. Canfield was found by firemen sitting on floor of her room, badly burned, splashing water over herself. Both she and her husband succumbed.

off-shift of the Fire Department, which manned and responded with Reserve Engine 76 and Hose Car 77.

The entire fire department of nine pieces of equipment and seventy firemen were quickly on the scene, together with thirty-five police officers, dozens of civilian volunteers, and Red Cross emergency workers. The situation as they found it on arriving was appalling.

Fire Fighting Dropped for Rescue Operations

Chief Kirch was informed by Assistant Chief Cosgrove that when the latter was responding and was two blocks from the hotel, the odor of smoke was prevalent and as he turned the corner of Fourth and Iowa streets, one block away, flames were seen shooting out of the lobby windows and lapping up the side of the hotel structure to the second floor. There were approximately thirty-five persons at the windows on the Fourth street side of the building, all screaming and shouting. Some were standing on the ledge, some were sitting on window sills and others were seen with just their heads protruding from the windows. One man was hanging from a window sill on the outside wall of the building.

Even before the arrival of all the first-alarm companies, following his radio dispatching of the general alarm, Assistant Chief Cosgrove circled the building, shouting to the fire-crazed persons not to jump, that help would be there quickly.

It was obvious to every fireman responding that the department had a serious job of rescue on its hands. With a single ladder company, and even with the addition of volunteers, it was quickly apparent to the chief officers of the department that fire-fighting operations must be suspended, temporarily, at least, for the rescue of the imperilled occupants.

Engine 3, in charge of Lieut. Francis Henkels, which had stretched in a line from the hydrant at Fourth street between Iowa street and Central avenue, was ordered to abandon its line and man a life-net. This was removed from the aerial ladder, which had been placed about midway of the old section of the hotel on the Fourth street side so that the crew could sweep the entire north elevation of the structure with their aerial without moving the truck, and was quickly brought into play.

While Lieut. Henkels was unstrapping the net, Assistant Chief Cosgrove was calling for volunteers to help man it. About ten of the most likely were pressed into service. As they placed the net into position, and before holders even could get it shoulder high, a woman jumped. Four more tenants were caught in the net, while efforts were being made to reach them by way of the aerial ladder.

Twenty-Seven Rescued by Life Net

Assistant Chief Cosgrove then ordered the net taken to the front of the Central avenue side of the building and to further the rescue operations, ordered Engine 1's stream, which was then being directed into the lobby, shut down, directing the men to concentrate their entire efforts on saving life.

Meantime another critical situation was being met by the fire fighters. The east fire escape, which terminated at the doorway of the Red Lounge, the first section of the hotel to fall prey to the flames, was made impassable as an avenue of escape for the tenants by the flames which shot out of the lounge doorway, to engulf its lower sections. The men of Engine 5, under Lieut. Wm. Blaser, operated their stream on the fire escape and on a 24-foot extension ladder, which had been placed alongside the fire escape, in the effort to remove people from the fire escape 36 feet above the street, below which point it was impossible for them to descend because of the flames. Many persons were removed from the fire escape under cover of this protecting spray.

Chief Kirch reports that members of Engine 1, aided by civilians, rescued three other persons from the Central avenue side of the structure. The net was then taken to the south front of the building where a grandmother and her granddaughter were seen in a third floor window, in imminent danger. Assistant Chief Cosgrove shouted to the woman to push the child out and then jump, but she appeared confused, and wavered to fall back into the smoke and fire. Later the bodies of both were recovered in their room.

As the fire progressed the problems of effectively using the net multiplied. Heavy smoke made it almost impossible for occupants, in windows and on ledges, to see firemen or net, while firemen in turn could hardly make out the victims. In this extremity a policeman would shine his flashlight on endangered persons and when the signal was given by the fire officer that the net was in position, a fireman would shout to the occupant to jump.

There were injuries, however, to hotel guests, and to net-holders. Seven of the latter were hurt to varying degree in the rescue efforts, while a number of victims suffered death or serious injuries by either missing the net entirely or because of improper landings. One woman, Chief Kirch reported, jumped and her neck struck the metal rim of the net. A man missed the net by two feet in a fourth-floor leap. Both were fatally injured. On the other hand, an elderly woman made a good jump from the third floor and walked away from the net. Net holders were imperiled when hotel occupants first threw down their luggage and possessions and then proceeded to jump. "We had four men holding the net injured this way," reports Chief Kirch, adding that most of those injured in jumping broke arms or legs, due to the awkward position in which they landed.

Early in the operations Assistant Chief Cosgrove instructed men to concentrate their rescue efforts on persons on the top floor who, obviously, were in greatest danger.

One of the first net rescues, reports Chief Kirch, was that of a young woman from the fourth floor. Before she jumped, she took off both her slippers and placed one on each side of her on the window sill; then she kicked herself away from the building. In her descent she turned a double somersault in mid-air. Miraculously, she escaped serious injury.

While net rescues were being effected, the building was being laddered to the limit of the resources of the department, and other rescues were being made. One of these was the removal of a blind man and his sister from the roof of the building by means of firemen using the aerial

ladder. The two victims had escaped to the roof of the old section but were threatened by the flames, which had broken through in places. Laddermen E. Strohmeyer and R. Dunphy reached the roof and victims but because of the excessive heat and smoke were unable to return with their charges. It was necessary to shift the ladder before they could take down the couple.

In addition to the use of the life net and aerial ladder in the rescue of trapped persons from the north side of the building, the 45-foot extension ladder was employed to reach and remove occupants from the third floor of the same front. All told, 105 feet of extension ladders, 64 feet of wall ladders and 28 feet of roof ladders were used, according to Chief Kirch or 272 feet including the 75-foot aerial, all the equipment of Ladder Co. No. 1. In addition, 108 feet of ladders were employed by the various engine companies.

A total of thirty-seven persons were saved by means of ladders.

Firemen Control Extension Into Newer Section

Aided by fire-proof doors between the old and newer parts of the hotel, firemen were able to prevent the flames from taking serious hold on the annex.

As soon as rescue operations had been completed, Chief Kirch ordered the Assistant Chief to check fire doors separating the two sections. The latter found that the hallways were strewn with clothing and personal effects of hotel occupants, on the fourth, fifth and sixth floors. This condition prevented the complete closing of the fire-doors, although the fusible links had fused on the "type A" doors. The fire was making headway into the hotel corridors through doors that had been thus inadvertently blocked open, or were improperly closed, and Chief Kirch ordered hose lines taken up to each floor by means of the fire escape on the south side of the annex building.

At the same time, he directed that a ladder pipe and a deluge set be placed in operation and the streams directed against the point where the annex joined the older structure to check the threatened extension into the upper part of the taller addition. Also, as rapidly as they could be brought into operation, streams were directed into the older building, by this time completely involved by the flames, the roof having been consumed together with most of the floors.

The fire was reported under control at 3:00 A. M.

Detail Fire Department Operations

According to Chief Kirch's report to FIRE ENGINEERING, in addition to the foregoing data, seven hand-lines, two deluge sets, two turret or deck-pipes and one ladder-pipe were used. Five pumping engines were in operation a total of 19 hours and 58 minutes, pumping operations. Company operations were as follows:

Engine Co. 1: in charge of Pipeman J. Goff; responded on first alarm; stretched from hydrant on Fourth st. between Central ave. and White st. Ordered by Asst. Chief Cosgrove to abandon line and concentrate on rescue. Hand line was equipped with 1¼-in. nozzle. Also pumped into a Multiversal nozzle. Used 1,000-ft. 2½-in. hose. Pumping period 3 hrs., 15 min. Engineer W. Woodward injured wrist holding net.

Eng. Co. 2: in charge Lieut. Francis Henkels, responded on first alarm; stretched from hydrant on Fourth st. between Iowa st. and Central ave. Ordered to abandon line and concentrate on saving life. A 1¼-in. nozzle was used on hand-line. Also supplied turret pipe. Used 1,000 ft. 2½-in. hose. Pumping time, 4 hours, 30 mins.

Eng. Co. 4: in charge of Lieut. McCann; responded on first alarm; stretched from hydrant on Fourth st. in alley between Main and Iowa sts. Ordered to abandon line and concentrate on rescue. Hand-line equipped with 1¼-in. nozzle; also supplied ladder and turret pipes. Used 1,000 ft. 2½-in. hose. Pumping period, 5 hours 35 mins.

Engine Co. 5: in charge of Lieut. W. Blaser; responded on first alarm; stretched from hydrant, Third and Central ave. Ordered to keep line in operation and play it on fire escape, east side of building to effect rescue of persons on this fire escape. A 1⅛-in. nozzle was used. Also supplied deck-pipe. Used 1,000 ft. 2½-in. hose. Pumping period 3 hrs., 5 min.

Eng. Co. 6: in charge Capt. Patrick McManus; responded on general alarm; stretched from hydrant at Fifth and Central ave. Ordered to abandon line and concentrate on rescue of people on Central ave. side of building. A 1⅛-in. nozzle used on hand-line; also supplied deck pipe and Multiversal set. Used 1,000 ft., 2½-in. hose. Pumping period, 3 hrs., 5 mins.

Reserve Eng. 76 and Hose Car 77: both equipped with turret pipes with 1½-in. tips, responded on general alarm; both apparatus equipped with 1,000 ft. 2½-in. hose. In addition to the above supplies of hose, 1,000 ft. of 2½-in. hose normally kept in reserve was taken to the scene of the fire.

Ladder Co. 1: details previously given.

The City Ambulance was in service at the fire and transported many injured persons to the hospital. It was assisted by local taxicab companies.

Fibre-Board Construction Accounts for Flash Nature of Fire

According to John Strohm, Iowa State Fire Marshal, the "flash" nature of the Hotel Canfield fire was caused by the use of fibre-board walls and ceilings. This material had been used in the redecorating of many other Iowa hotels, theatres, bowling alleys, cocktail bars, dance halls and other places of public assembly, Strohm stated.

The flames swept across walls and ceilings "like water dumped from a bucket spread across a floor" according to Strohm. "It swept through the Red Lounge, a vestibule and the lobby, and when it went up the stairway, it climbed the side lined with fibre-board without burning the wood railing on the other side of the stairs."

Fire Wrecked Interior of Dubuque's Hotel Canfield

Fire believed started by a cigarette in trash near the main floor lobby of the 55-year-old hostelry, found ready fuel in structure's combustible construction. Fibre-board "improvements" helped speed blaze.

Several types of fibre-board are made and sold, and two makes were involved in the Canfield fire, investigators said. This combustible material was installed several years ago, Hotel Manager Corcoran declared.

Paying credit to the Dubuque Fire Department for "superb rescue work," Strohm, on a basis of the investigation into the fire, will recommend to the next legislature:

1. That the use of fibre-board in places of public assembly be investigated, along with "some remarkable advances coming up in the way of covering which flame-proofs wood products."
2. That sprinkler systems be required in all hotel halls. Many at Dubuque died of heat after racing into halls, while their underwear and nearby lace curtains were not burned, Strohm said.
3. That fire prevention investigation of hotels be shifted from the department of agriculture to the state fire marshal, that penalties be waived in favor of a law giving the marshal authority to turn the key of establishments not observing recommendations.
4. That fire escapes either go down solid walls or past windows and doors equipped with fireproof glass. One victime at Dubuque died on a fire escape as flames belched through the window from the floor below, Strohm said.

Fire and Explosions Damage World's Largest Refinery

Fire which started in the barrel-house of the Whiting Refinery of Standard Oil of Indiana, one of the world's largest, razed the 600 by 100 foot structure and threatened the 970 acre plant, which is located east of Indianapolis Boulevard at 119th street in Hammond.

Explosions, which hurled blazing barrels of oil and gasoline as high as 400 feet, injured a dozen persons, none seriously. Several of the flying drums narrowly missed crews of firemen.

Firemen from Hammond, East Chicago, Indiana Harbor, Whiting and Gary fought with the plant's own brigade, to control the blaze, which, firemen said, would have spread to the adjoining grease house and storages but for a fortunate shift of the wind. They were also aided by a downpour of rain. Large quantities of foam were used in the fire-fighting operations.

The fire originated at the north-east part of the barrel-house, caused, it is said, by sparks from electric wiring. It was discovered by two loaders, who promptly warned the 350 or more plant personnel. Eight freight cars at the loading platform of the Belt Railway were reported destroyed, but 150 were said to have been saved. Railroad traffic on nearby main lines was not disturbed. The huge column of smoke, and the broadcasted report that the great Whiting refinery was afire caused large crowds to congregate, necessitating the calling of Highway police.

Losses were unofficially set at above $200,000.

Refrigerant as Fire Extinguisher

Trichloromonofluomethane — better known commercially as Freon 11, a refrigerant employed in some large air-cooling systems—can be used effectively to extinglish gasoline fires and prevent explosions which exact a heavy annual toll in property and lives, according to a research report released June 7 by Dr. R. R. Sayers, Director of the Bureau of Mines.

This study, covering six inert gases and their effects on three different types of gasoline, was made cooperatively by the Bureau and Mine Safety Appliances Company, and the report was prepared by G. W. Jones, Bureau chemist, and W. R. Gilliland, research assistant for the company, both stationed at Pittsburgh, Pa.

Other inert gases tested and ranked in descending order of their effectiveness as flame-quenching agents were dichlorodifluoromethane (Freon 12), dichloromonofluoromethane (Feron 21), carbon dioxide, automobile-exhaust gas, and nitrogen. Of the Freon series, dichloromonoflouromethane or Freon 21 probably is the most commonly used in refrigerating and air-cooling systems. Freon 11, the best flame-quenching agent among those tested, now is used in centrifugal compressors feasible only for large refrigerating or air-cooling units.

Gasoline is a chief contributor to the causes of costly fires and explosions, Dr. Sayres said, because it is used by industry in a greater quantity and a wider variety of applications than any combustible liquid. One phase of the Bureau's accident-prevention program is the determination of the explosion hazards of various combustible gases and vapors encountered in mining and allied industries and the development of means and methods of eliminating them.

The report describes the apparatus used, methods of conducting the tests, and results obtained in determining the flame-quenching properties of the various inert gases in connection with gasoline vapor-air mixtures. These results are presented graphically so that the explosion hazards of any given combination of the gases may be determined without resorting to laborious calculations.

A free copy of Report of Investigations 3871, "Extinction of Gasoline Flames by Inert Gases," may be obtained by writing to the Bureau of Mines, Department of the Interior, Washington 25, D. C.

Ship Blast Drowns Fireman

Fireman Michael J. Berkery of Engine Co. 203, a son-in-law of Deputy Chief John J. Ryan, of the New York Fire Department, lost his life in an explosion and fire aboard the freighter Congo at Pier 29, foot of Kane street, Brooklyn, shortly before midnight, June 13. Two other firemen, Joseph Shipper and John J. Clune, also of Engine 203 were blown overboard by the explosion of gases that had accumulated in the ship's hold. They were rescued by other firemen.

The fire broke out from undetermined sauses shortly after 11:00 P. M. while the 5,000-ton vessel was being loaded with rubber tires, tar and coal. Heavy clouds of black smoke blanketed the ship and area, making it difficult for firemen to reach the seat of the fire even with masks.

Four alarms brought a small army of fire fighters, including three fireboats, in charge of Frank Murphy, Acting Chief of Department with Fire Commissioner Frank Quayle.

Navy divers located Fireman Berkery's body at 9:00 A. M. the following morning. Two other firemen suffered minor injuries.

Tennessee Firemen's Association Convenes

The thirteenth Annual Convention of the Tennessee Firemen's Association was held in Clarksville, Tenn., May 20 to 22, inclusive, with over 200 registrants.

The officers elected are: J. E. Wardrep, Jefferson City, president; B. B. Qualls, Murfreesboro; C. M. Kenner, Kingsport; Frank Murphy, Springfield and Otis Pruitt, Dyersburg, vice-presidents; Joe J. Martin, Nashville, secretary-treasurer, and W. D. Rogers, Nashville, Historian.

The convention educational program included addresses on modern fire-fighting and control, by outstanding speakers, demonstrations of hose layouts, drill-tower evolutions, and other features. Interesting entertainment was provided by the city of Clarksville.

Air View of the Standard Oil Co. Plant Shows Smoke Pouring from a Fire in the Barrel House. Firemen Brought the Fire Under Control in Four Hours.

What Advance in the Fire Service?

By FRED SHEPPERD*

IT is natural, during the lull following a period of four years of intensified activity, for the fire service to take stock of its present status and of the developments which have taken place during that time.

While we were expending our every effort toward the winning of a war, new techniques, new equipment and new fire hazards entered the picture of fire protection; and now we have opportunity to appraise them and to determine just what effect they will bring about in the fire service.

Let us first review some of the developments which have taken place, and which prove beneficial in reducing the fire losses of the nation.

Increased Use of Fog

One of the most noticeable, and spectacular, advances in fire fighting in recent years has been the development of fog equipment for fire fighting. By fog is meant finely divided water, the division taking place by discharging the water under pressure through various types of orifices.

Probably the secret to the effectiveness of fog in fire extinguishing operations lies in the physical performance of water when separated into minute particles.

For example, if a drop of water is divided into small droplets of 1/32 the diameter of the original drop, the total area of the surface is increased 25 times. If a drop is broken into droplets of one-thousandth the diameter of the original drop, the surface area is increased 625 times.

In other words, dividing water into tiny droplets increases the surface area tremendously. This increase in surface area produces many beneficial effects in fire fighting operations.

The heat absorption power of water is directly proportional to its surface area; the ability to absorb noxious gases is likewise proportional to the surface area; the tiny droplets of water found in a fog stream not only spread the water over a larger area than might be accomplished with a solid stream, but produce less disturbance when applied to any surface. As will be pointed out later, this is a very important point to be considered in the handling of certain types of fires.

While fog has been on the market for approximately twenty-five years, the greatest increase in its use has been since the beginning of World War No. 2. The experiences of the Navy and Coast Guard have emphasized the possibilities of fog in fire extinguishing.

A recent survey made among forty fire departments which use fog regularly for fire fighting brought forth some very illuminating disclosures.

In general, these departments used fog on inside fires, particularly when a severe smoke condition existed. Grease and oil fires and fires involving inflammable volatiles were also handled with fog streams. Grass and brush fires were found to be particularly susceptible to fog.

Some departments reported very effective results in the use of fog in extinguishing fires in dusty zones of buildings, while others reported minor damage from fog in use on fires involving chemicals and electrical equipment.

It is interesting to observe the advantages of fog over solid streams, as proven by actual use of those participating in the survey.

The following advantages were pointed out by the majority participating:

Fog clears out smoke by driving it ahead.

It absorbs some of the gases of combustion, as well as other gases which may be encountered.

It reduces the temperature materially by rapid absorption of heat.

It draws in fresh air, and this, together with the protection afforded by the fog, gives the hosemen greater confidence. Better work results, and fire is reached quicker.

It cools off interiors quicker than solid streams.

It reduces water damage and fire damage.

It conserves water, as the water is used more efficiently, and greater extinguishing effect can be secured by a given quantity of water in the form of fog than when applied as a solid stream.

Fog nozzles require less men to control than do solid stream nozzles.

Two interesting applications of fog, which proved highly successful, were indicated by two of those participating in the survey.

In a flour mill, after an explosion, fog was used effectively for wetting down small fires on ledges without displacing dust. As will be appreciated, had a solid stream been used, the dust would have been blown in the air with a possibility of ensuing explosion.

In a lime shed fire, fog was applied, and little or no slacking of lime occurred in the exposed bins. Had a solid stream been used, it is likely that severe slacking would have occurred, with a possibility of intensifying the fire.

When using fog for interior fires, it is very important that ventilation be provided, so that an outlet for the gases and smoke to leave the building is provided. In such cases, the smoke and fire may be driven ahead and out of the building, making prompt extinguishment of the fire possible.

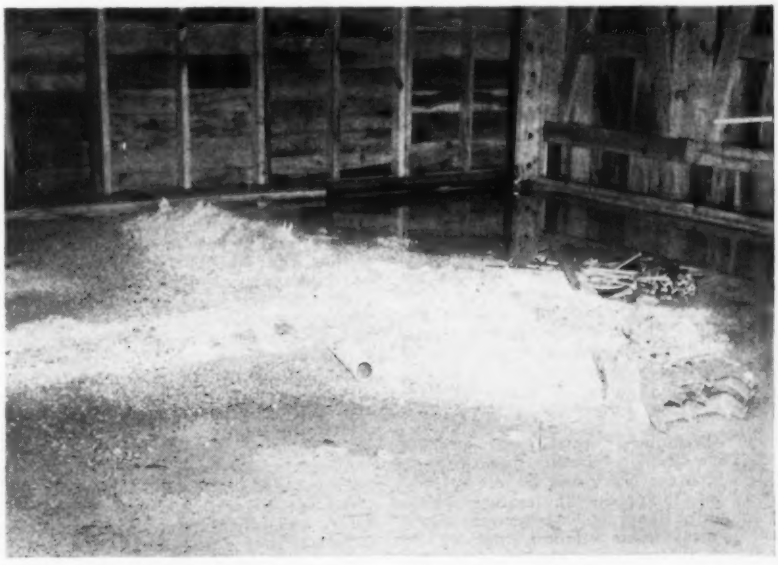
If no forward ventilation is provided, there is danger of pressure being built up ahead of the fog blast with a possibility of a sudden flash-around of the fire party.

Fog lacks penetration in overstuffed furniture, mattresses, grass piles, hay shocks, etc. However, it is possible that this fault may be overcome by the use of a "surface tension reducing agent" which will be described later in this article.

Foam

Foam is commonly divided into two classifications, namely, 1 chemical foam and 2, mechanical foam.

Chemical foam, as is commonly known, is produced by the reaction of two chemicals, in solution, brought in contact with each other; by two chemical powders brought in contact with water, or by a single chemical powder brought in contact with water. Mecanical foam, on the other hand, is generated



Magnesium Ash After Tests to Control with Sprinkler Systems

*Editor, FIRE ENGINEERING. Paper delivered before Annual Convention, New York State Association of Fire Chiefs, Elmira, N. Y., June 3, 1946.

Oil Tank Test Fire at Findlay, Ohio, Just Before Sub-Surface Application of Foam. Foam Completely Extinguished the Fire

through a mechanical action rather than a chemical action. In producing mechanical foam we must first have water, secondly foam liquid, third, air and fourth, they must be applied in proper proportion.

The air may be introduced through aspirating cages or even entrained into the streams by the action of impinging jet after the water has left the nozzle. Mechanical foam liquid can be introduced into a water stream at the suction side of a pump, at the discharge end of the hose line through a pick-up tube or at an intermediate point in the line through a proportioning device.

Chemical foam was increased in use during the years since Pearl Harbor, but no major changes occurred in its make-up. On the other hand, mechanical foam was improved by the development of new foaming agents and new methods of proportioning.

One of the most novel developments in the use of foam during recent years has been sub-surface application at fires involving tanks of flammable liquids. The foam is introduced through an inlet at the bottom of the tank at sufficient pressure to overcome the head of the oil in the tank. A minor difference is involved in the sub-surface application of foam as compared to surface application. The foam, which acts as a vehicle for carrying water to the surface of the oil, also serves as a cooling agent in lowering the temperature of the oil which is involved by fire. When the foam reaches the surface, it forms a blanket which produces a smothering effect.

Extensive tests carried out at Findlay, Ohio, on a 93-foot diameter tank showed that sub-surface application of foam is highly effective.

Fog-foam

A development in the use of foam which took place during the war, and for which the Navy was largely responsible, was the production and use of fog-foam. Fog-foam essentially consists of mechanical foam minutely divided by passing through a proper type of fog nozzle. Not only does the fog-foam provide excellent heat protection for the fire party, but it is an excellent extinguishing medium, and prevents flashback of fires involving inflammable volatiles, for it covers the surface involved. The advantage of this particular feature of fog-foam is quite evident where gasoline is burning on the ground or on other level surfaces. If the area is large, it is extremely difficult to control the fire by fog alone, as the tendency of the fire is to flash back or around the fog stream and reinvolve areas previously struck by the fog. However, with fog-foam, a proportion of the fog-foam reaches the ground and forms a protective coating, preventing these flashbacks.

In crash fires, in tank fires and similar fires of large area, the value of fog-foam is particularly noticeable. Its use in future fire fighting involving volatile inflammable risks may be expected to increase in scope.

Surface Tension Reducing Agents

One of the reasons for inefficient fire extinguishing operations where solid streams are employed is the tendency of surfaces to shed ordinary water. When a stream strikes a hard surface, for example, the water is broken up into small globules or drops, and these drops frequently are thrown off by the surface without leaving any wetted area. Also, where fire is burning in baled cotton, overstuffed furniture, hay, and similar materials, difficulty is encountered in getting the water to penetrate into the burning material.

About three years ago, attention was first directed toward the ability of certain chemicals to increase the penetrative power of water. These chemicals, commonly known as water-wetters, or surface tension reducing agents, reduce the physical characteristic of water which prevents ready penetration, namely, surface tension.

Water treated with surface tension reducing agents readily penetrates cotton bales, charred surfaces, stuffed furniture and other materials which would normally shed pure water. These agents used for reducing the surface tension are salts of various types, and are usually used in the proportion of 100 parts of water to one part of salts.

Common water-wetting agents are non-corrosive to metal, and do not injure fabrics and other materials, so that they can be employed in booster tanks or other water containers without fear of unnecessary damage.

From experiments which have been conducted, it is evident that much higher efficiency of fire extinguishing by a certain quantity of water can be attained by the use of water-wetters. Water so treated readily penetrates even hardwood surfaces, rather than flowing off, and remains there until vaporized. As rapid penetration is secured, there is less run-off, and consequently less water damage due to inefficient use of water.

Water-wetters used in water employed by fog nozzles have been found quite effective in extinguishing certain types of inflammable volatile fires. However, a great deal is still to be learned about the use and application of water treated with water-wetters. This much may be said, however: There is real promise in the use of these agents.

Carbon Dioxide

Carbon dioxide continued its growth in fire protection application. Many naval ships and merchantmen were completely equipped with automatic carbon dioxide extinguishing apparatus. In addition, the fire service saw the advent of new mobile carbon dioxide units carrying 12,000 pounds of refrigerated carbon dioxide gas. While such units are not suitable for ordinary fire fighting operations, there are many applications in which they should prove highly successful, and they may be expected to find increased application in areas where specific fire hazards for which they are designed to control may be found.

Dry Powder

Dry powder extinguishers found increased use during the war, and it might be interesting to add that they have proven particularly effective in the control of butadiene fires. It may be recalled that butadiene is so volatile that it boils at a temperature of 24° F. Fires involving it are extremely difficult to control. The experience of one plant manufacturing butadiene with dry powder extinguishers indicates that this agent is particularly well fitted for this particular application.

Small Lines and Nozzles

There has been a marked growth in the use of small diameter hose and nozzles for the initial attack on fires. The mobility of these small lines, and their ability to handle ordinary fires which have not made too great headway have made them particularly valuable in the hands of undermanned fire departments. With the advent and increased use of fog, it is very likely that small hose lines equipped with combination fog and straight nozzles will find increased use, almost to a point of universal application in the future of the American fire service.

Radio

The assignment of special wave bands, or channels, for short wave radio for fire departments has proven a

tremendous incentive to use of radio by fire departments throughout the country. The value of radio on all fire apparatus, including chiefs' cars, has been proven by many installations throughout the country. A survey conducted by the International Association of Fire Chiefs, and published in the 1945 "Convention in Print" issue of the Proceedings, shows that fire chiefs who have used radio extensively are convinced almost to a man that it is one of the most useful additions to the fire service of all time.

The efficient use of fire department apparatus depends upon the efficiency of communication. With radio, each unit of the department is in contact with fire alarm headquarters, fire headquarters and fire grounds at all times. The prompt movement and shifting of apparatus to cover fire alarms has been expedited tremendously by the advent of radio in the fire service.

The walkie-talkie unit will be the next improvement which may be expected in larger departments. The ability of the officers on the street to keep in contact with fire fighters within a building, or out of range of voice, makes this type of unit most effective in developing higher efficiency in fire fighting.

Radio in general is not confined in its value to large departments. Rural departments, too, have found it very effective in marshalling forces, deploying them and keeping in close touch with the operation at a spreading fire. Fire departments may be out of reach of regular fire alarm systems and telephones, but with radio available, they still maintain contact so necessary for efficient fire fighting operations.

Treated Wood

The future will likely show a marked increase in the use of fire resistant wood. A number of manufacturers are today turning out chromated zinc chloride and other fireproofing liquids. Wood used in building construction can easily be treated with these chemicals and a structure of such lumber is quite resistant to the spread of fire. The Committee on Wood Utilization of the U. S. Department of Commerce estimates that an added cost of only two per cent, all vulnerable parts in a new home can be protected with treated lumber. Wood so treated is not only fire retardent, but resists decay, repels termites, is more resistant to abrasion and is odorless. Just as cities have enacted anti-wood shingle roof ordinances, we believe the future will show a general adoption of regulations requiring the use of treated wood in all frame construction within the built-up sections of cities.

Fire Resistant Paint

For years technical paint men have been attempting without success to produce a completely fireproof paint. No material so far developed, which is similar to paint in composition or method of application, can be expected to remain unaffected when exposed to flames at fire temperatures for an extended period.

However, the search was not entirely in vain. As a result of continued research, considerable progress has been made in the development of so-called fire retarding paint. These coatings limit fire damage to the wood over which they are applied, thus helping to retard the spread of a fire. Unfortunately, the most successful fire retardant paints are not suitable for exterior exposures nor they do not meet very exacting appearance requirements. Consequently their field of usefulness is confined chiefly to weather protected areas where looks are not of primary consideration, for example, cellars, attics and factory interiors or on the underside of floors. For these purposes, however, they offer a reasonable protection against excessive damage from small fires and also may help to prevent such fires from developing quickly to uncontrolled proportions.

It is believed that further progress will be made in fire resistant paint, and that within the next few years this method of protecting combustible surfaces will be perfected to such a point that the spread of many fires will be checked.

A great deal of work on fire retardent coatings has been carried on at the U. S. Forest Products Laboratory, Madison, Wisconsin. The results have been most encouraging. It is not unreasonable to expect that fire retardant paints will ultimately prove one of the best aids of the fire service in preventing extensive fires in structures.

Treated Cloth

While canvas and similar cloth, used in the manufacture of awnings and other protective covers, have been on the market for a number of years, great strides have been made during the past four years in developing more permanent treatment for canvas, etc. Treated canvas as presently supplied will char when exposed to flame, but will not transmit fire. Furthermore, the treatment is quite permanent. In addition to fireproofing qualities, such cloth is also mildew and rot resistant. The general adoption of this type of cloth for the manufacture of building awnings should aid materially in the reduction of this type of fire.

So much for developments which will aid in reducing fire losses.

New Hazards

Just as there have been new developments in fire extinguishing and fire resisting products, so have there been new developments in materials which present added fire hazards with which the fire service must cope.

Plastics

There has been a lot of talk about the dangers of plastics, from the standpoint of fire hazards and the generation of toxic fumes. The hazard is nowhere nearly as severe as commonly painted. With the exception of cellulose nitrate plastics, the majority burn very slowly or not at all under temperatures encountered at small fires.

Many plastics give off irritating fumes or gases, but, here again, the cellulose nitrate is the most dangerous. When it decomposes, poisonous gases are generated.

Unfortunately many small articles such as dress ornaments and novelties are manufactured of nitrocellulose (cellulose nitrate) and these will always be dangerous. Igniting at fairly low temperatures, they burn violently and generate intense heat. It is in this class of plastics that the trade product "celluloid" falls.

Fabrics

Within the past few years two types of fabrics have appeared on the market, each of which is exceedingly dangerous to human life. The first is a long nap brushed rayon, which has the appearance of cotton flannel but with longer nap. Rayon in this form ignites readily and fire flashes quickly over the surface. A couple of years ago there was an epidemic of fatal fires involving youngsters at Washington, D. C., as well as in other cities, who were wearing cowboy suits trimmed with long nap brushed rayon. The textile industry took immediate steps to prevent merchandising of this product and action was taken at the Congress in Washington to prevent the manufacture and distribution of long nap brushed rayon. It is believed that there will be no further trouble from this source.

Another product which is still on the market and which is extremely hazardous is a pyroxylin coated fabric. This fabric may be cotton or linen, and it appears in the form of print goods, coated with pyroxlin to give it a gloss. When ignited, the material burns like celluloid and generates intense heat. While such cloth was never intended for use as kitchen aprons, unfortunately it is sold over the counters for any use the customer wishes to make of it. Because it is water-repellent, many housewives made aprons of it, and there was a subsequent epidemic of fires, some of them serious, brought about by the ignition of the cloth in contact with open gas burners at kitchen ranges.

Attempts are being made at the present time to control the sale and final use of this product.

Many other substitute materials will find their way into the market; even substitutes for leather.

In New York recently, vegetable fiber, impregnated with oil, and used for soles of shoes, was involved by fire. The material ignited spontaneously, and after the fire was extinguished, the untouched cases containing the material were removed to a fire station for observation. They were carefully covered with tarpaulins to prevent moisture reaching the contents. The crates were placed on skids, and were separated each from the other by strips of wood, to provide ventilation. In spite of all these precautions, the cases of this material burst into flame after a couple of days, and were completely demolished.

Light Metals

Two light metals have come into wide use in recent years. They are magnesium and zirconium.

The tremendous development in the production of magnesium for war uses resulted in great plant capacity for this metal. The widespread use of magnesium may, therefore, be expected in the coming years. Not only in the fabrication of this metal is a really serious fire hazard created, but the articles in manufactured form, when subjected to high temperatures at a fire, will burn with violence, generating great heat.

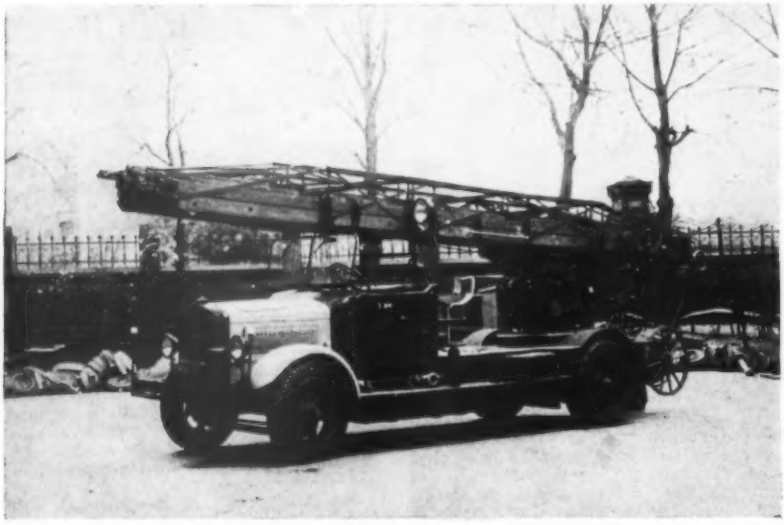
Magnesium articles may be found in quantity in hardware stores of the future; it may be found in furniture stores as well as in homes in the form of lighting fixtures, lamps, furniture and similar articles. Fortunately magnesium articles in these forms are not readily ignited, and where they are not stored

(*Continued on page* 546)

The Berlin Fire Brigade

By A. H. SELLECK

SINCE the fall of the city of Berlin, a good deal of news and information has come out of the city. The majority of the information has been about how the allied military governments' reorganization of Germany's capitol city has been progressing. Little has been said about the reorganization of the public utilities or public safety, in particular the fire service. This phase in itself has been a tremendous task and is showing great strides or progress.



Ladder Truck of the Schonenberg Station. This Ladder Is 26 Meters (85 Feet)

First, it might be a good idea to give an outline of just how large this city is and how it's laid out. Berlin at one time was relatively a small city with many small towns and communities surrounding it and making up greater Berlin. There were, in fact, twenty individual towns. In 1921, all these smaller cities were incorporated to form Metropolitan Berlin. At the last pre-war census, the population of the city was 4,500,000 people. Today, as best can be determined, the population is approximately 3,000,000.

When it was decided that the occupation of the city was to be divided between the four major allied powers, it was split up into pie-like slices between the United States, Great Britain, Russia and France. The U. S. sector comprises six of the twenty boroughs or Verwaltungszezirks, as they are called in German. These boroughs are: Kruzberg, Neukolen, Schoneberg, Steglitz, Templehof and Zehlendorf. There are 845,260 people living in these boroughs.

The organization of the Feurhwer (fire department) before and during the Nazi regime and finally today is as follows: The basic foundation of the brigade is similar to that of our own departments. The head of the department, or chief officer, is the Brandirektor. Under him came five other officer ranks, corresponding to our own. It is interesting to note that all, except one, of the officer ranks had to be filled by men with a college background. The exception was of the lowest officer grade, that of a company officer or brandinspektor. Before V. E. day, each of the city boroughs was considered a battalion and operated in that manner.

There were, in these twenty boroughs, thirty-seven regular paid stations and fifty-seven vounteer stations. These volunteer stations were not wartime extras but an interegal part of the peacetime brigade. Of the regular stations, twenty-eight are in operation today, and of the volunteer stations, all fifty-seven are in operation. Before the Nazis took over, the department was municipally operated. During the Nazi regime, the brigade was nationalized, similar to the nationalization of the English brigades. Another change the Nazis put into effect was to make the fire brigade a sub-division of the police department. All heads of the fire department were answerable to the head of the national police. The only other change that they made was to ask all the high ranking officers of the department to join the party. If they did not comply, they were removed and replaced by party members. The firemen were also asked to join the party, but if they did not, they were not replaced. The Nazi government realized that firefighting was a profession and that old experienced hands are hard to replace. An incidental fact also is that under the Third Reich, the chief of department held the rank of Major General.

The department strength was 2,000 paid men and 1,800 volunteers. The salary range ran from approximately 3,000 reichmarks per year for the men to 12,000 for the chief (at this time the equivalent salary in dollars would be $750 to $3,000). However it must be remembered that the cost of living in Europe has always been less than that in the United States. During the Nazi time, there was no appreciable change in the salaries. The working system is the two platoon, 24 hours on and 24 off.

As for equipment, at its height the department had 313 motorized pieces of apparatus. In the fire alarm division, there were several makes employed. The most prominent was the Siemens. This is comparable, in company, manufacture and operation, to the American Gamewell. In fact, in the Schoneberg district of the city, there is a Gamewell system in operation. All the alarm systems compare to the Gamewell automatic, whereby an alarm is pulled and is transmitted to the nearest fire sta-

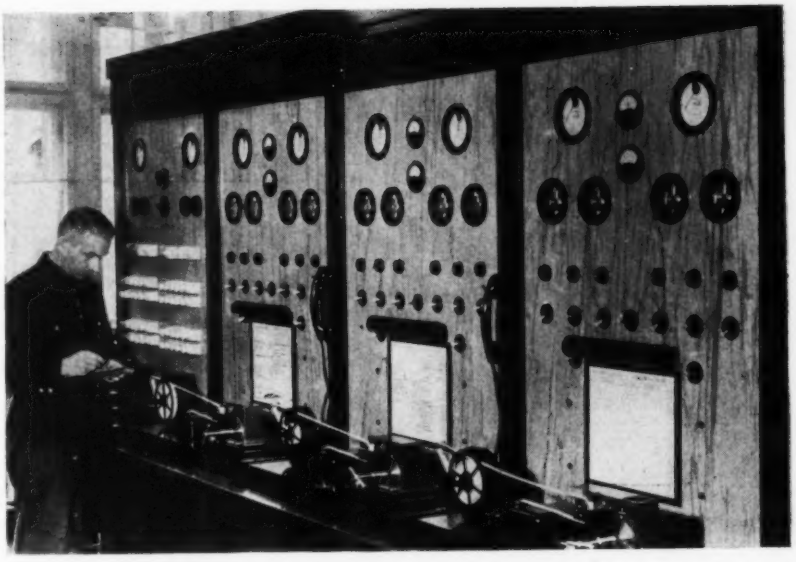
Left to Right: Sgt. A. H. Selleck, the Author; Captain W. R. Davis, Fire Officer, Public Safety Office; Gretchen Reissner, Interpreter; Chief Feierabend, Chief of Berlin Brigade, and Company Officer Stadgren, Schonenberg Station

tion to that location. There were 2,000 boxes located throughout the city. There never has been any second alarm assignment to boxes. There is an initial assignment to a box location, and from that point on additional equipment is summoned by the officer in charge as he needs it.

The aforementioned volunteer stations are equipped and operate basically the same as their paid brothers. However, the pay is in the lower bracket. The only men in this setup that are paid are three men and one officer that are in residence at all times. The rest of the crew are call men and live in the immediate proximity of the station. They are summoned by an air whistle or siren similar to the systems used in the States. The only compensation these call men received was when they lost time from their jobs or factories where they were employed.

To get some idea on just how busy the Berlin brigade was in peacetime, the last records available were those of 1938. In that year, the regulars and the volunteers responded to 5,428 alarms of fire and 8,109 emergency calls other than fire. The fire loss for that year was approximately 5,000,000 reichmarks (approximately $1,500,000). The lower fire loss all over Europe is not due to the efficiency of departments nor to fire prevention programs but chiefly to the fact that most buildings are constructed of stone or brick and have tile roofs. The damage during wartime due to bombings both incendiary and high explosives is not included. In the battle for the city, the fire brigade as well as all other municipal and governmental agencies completely collapsed.

It is from this point that the Allied Military Government had to start. The first step was to take an inventory of what had to be protected and what equipment was available to protect it. Of 65,650 buildings in the American sector, only 14% or 9,362, were in a repairable state, that is, those that repairing or rebuilding of which would be at all feasible. As for equipment, a good deal of this was destroyed in the battle for the city. Obviously water mains, telephone and fire alarm cables were badly disrupted. Of the 313 pieces of apparatus, only 121 were found to be serviceable. Those that were salvaged could only be used after considerable repair. Of the 2,000 fire alarm boxes, only 400 could be put back into service.



Fire Alarm Room of Zehlendorf Battalion of Berlin Fire Brigade. Operator Is Shown Checking His Tape After Alarm Has Been Dispatched

All men and officers with party affiliations were removed and replaced. The chief, who under the Nazis had been a SS Major General, was arrested and replaced by a former company officer, Herr Feierabend. During the Nazi rule, Chief Feierabend had resigned by his own choice, rather than work for the Nazis. The selection of Chief Feierabend was a good choice to head the newly reorganized brigade, having more than a quarter of a century of firefighting behind him. The Chief is given a fairly free hand to run the brigade as he sees fit. He is answerable to the individual fire officers of the four Allied Governments.

In the American sector, the fire officer is captain William R. Davis. Captain Davis is a former battalion chief from Columbus, Ohio, and a very capable man for the job. Up to early November, Captain Davis had been on military leave to the Army Engineers. Having completed twenty-five years service in the Columbus department on November 1st, he has asked to be retired.

In each of the six U. S. controlled boroughs of the Berlin Brigade, there is at least one regular station operating. In the high risk areas there are more. All told, there are nine stations. As equipment is made available, more stations will be opened. All equipment used, and to be used, must be supplied by the German Government, as the U. S. Government will not supply any equipment. As for water supply, the city is pretty well fixed. Most of the water mains have been restored to service, and there are still plenty of emergency water points serviceable from the days before the fall of the city. Until underground cables could be straightened out, telephone was the main means of fire alarm communication. Today, of the 400 salvaged fire boxes, 100 are in service in the American sector.

The next problem that Captain Davis faced, and to a certain extent still does, was manpower. Of the 2,000 men formerly in the brigade, some had died in battle for the city and others had been removed for being members of the Nazi party. After all had been screened, 1,000 were available for duty. Recruiting, so to speak, is still being carried out. All hands are required to attend a school. New men are taught the mysteries of firefighting and old men are brushed up on tactics. Even after they leave the school, two hours daily is devoted to drilling. Most every engine house has a hose tower or drill tower in the rear of the station where these drills can be carried out. It is surprising to note the amount of service some of these firemen have in the business. In one sta-

Sedan Type Apparatus with 500 G.P.M. Trailer Pump Used by the Volunteer Stations. This Particular One Is in the British Sector of Berlin. It Carries 800 Feet of 2½-Inch Hose and 500 Feet of 1½-Inch Hose

Triple Combination Pump, 650 G.P.M. Capacity

tion in particular, the Schoneberg Station, 12 men of one platoon on duty were interviewed and the average number of years time for these men was 21 years.

After finding men, a new problem arose—salaries—who was to pay these men? Most of the borough governments were very low on funds. It was finally decided that the individual boroughs would have to foot the bill. However, it was further decided that there was little to buy and that all the necessities of life were rationed, such as food, etc., so there was not the need of as much money. This occupation was set up so that Germany would not make any money. Consequently the salary range was fixed from 250 reichmarks per month to 500. At the present rate of exchange the mark is valued at ten cents; this would mean the salaries are from 25-50 dollars per month.

Perhaps it would be better to describe a typical station and see how they are equipped and operate. Two stations were chosen because of the different types or risks in their respective areas. One is located in Zehlendorf and the other in Schoneberg. The Zehlendorf Station is located on Onkle Tom Strasse, a peculiar name for a street in Germany, and is a semi residential area. Two of the largest military organizations in all Berlin are located in this district. One is the U. S. Group Control Council, which is the center of the Allied Governments control for the occupation of Germany. The other is Berlin District Headquarters. This is the headquarters for all military units in Berlin. Also located in the area are two hospitals. The rest of the area is residential. The station itself is a three-door house, constructed of field stone. At present it also houses a Siemens automatic fire alarm system. The alarm room is manned by one man, who also doubles on the switchboard. There is only one piece of apparatus in service at the station for the present. This is a 120 hp Diesel 650 gpm triple combination pump. The crew for this wagon is eight men and one officer. For responding the men wear leather boots a steel helmet, very similar to the type worn by the Wehrmacht, a leather safety belt with a small handaxe. Every man is also equipped with a self contained gas mask, that is carried in a leather case. This is not a wartime innovation but a part of the former peacetime uniform. The uniform itself is a blue wool outfit. During cold weather, a heavy wool greatcoat is worn.

The other station in question is located in an entirely different type of a district. This is the Schoneberg Station. The Schoneberg Station is in a high risk area, having many stores, factories, theatres, tenements, etc., in their district. The station is a five-door station. It is constructed of brick and is five stories high. The reason for the size is that the married men and the officers had three room apartments above the station. Today just the officers live with their families in the station. For those men that are on duty, there is a bunk room, kitchen, recreation room, etc. The apparatus found in the station are, two triple combination pumps and one twenty-six meter aerial (85 ft.). A bit more as to the equipment carried by these pumps. They carry 1,200 feet of 2½-inch hose, 500 feet of 1½-inch, plus a 120-gal. booster tank and hose reel. All these figures are approximate as pumps are rated by the liter and hose is measured by milimeters and is put into four classes. Class A is 110 mm djameter or a little better than four inches. Class B is 75 mm, Class C, 52 mm and Class D, 25 mm. All fire reports are made out stating the number and class hose used. Incidentally, although the brigade is short of a good deal of equipment, it was found that there was an abundant supply of hose on hand. The hose used is all single jacket rubber lined. All the couplings are a snap type, with a bayonet type locking device. After each run all hose that was used is pressure tested and hung up to dry in a hose tower. When the hose is dried, talcum powder is blown into it before its rolled up and stored away. Returning to the rest of the equipment carried, it was found that two extension ladders of 24 and 30 feet were carried and three scaling ladders. The rest of the equipment was the usual equipment carried on our apparatus in the States. The ladder truck is strictly an aerial and carries no other hand ladders whatsoever. The 26 meter ladder is in common use but these are of the old type. In the department's heyday there were a good number of 45 meter aerals. There are only a few of those that were salvaged and are in service today.

As for station life it does not vary much from the life in our stations, except that military dicipline is strictly observed. The men seem to thrive on this discipline because as was pointed out the average number of years service at this station was twenty. This was evidently a busy station once.

The last subject to be covered, are the volunteer stations. These outnumber the regular stations and are located throughout the city and respond in conjunction with, and sometimes by themselves, with the regulars. Most of the stations are of the standard type. As a

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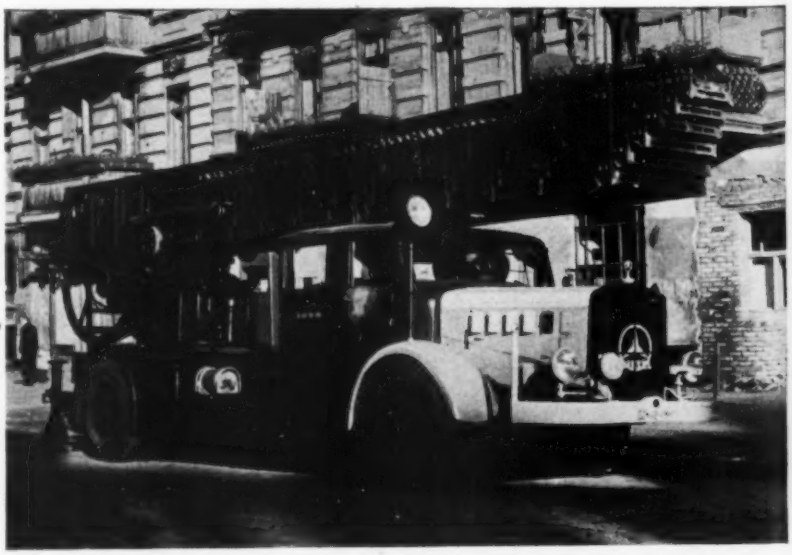

Forty-Five Meter Aerial Truck of Berlin Fire Brigade. This Is Approximately 145 Feet

Keeping Fires From Spreading

"A Little fire is quickly trodden out, which being suffer'd, rivers cannot quench" — Shakespeare

By FRED SHEPPERD

RECENT large fires, including that involving the Canfield Hotel at Dubuque, Iowa, have emphasized the severity of fire hazards which may be found in buildings erected before modern building codes came into being.

They further emphasize the fact that large fires may continue to be expected where suitable provisions are not made for:

1. Prompt transmission of alarms, either automatic or manual.
2. Automatic or manual extinguishment of fire.
3. Confining the fire to a portion of the structure by fire-stop, both for horizontal and vertical passage ways.
4. Retarding spread by fire resistant construction.
5. Maintaining good "housekeeping" in establishments, by regular inspection of uniformed fire department personnel.

Modern fire prevention ordinances and modern building codes properly enforced, constitute the foundation for an effective defense against fire.

Not only do these two instruments protect the new building, but are also effective in preventing a fire spreading in a structure which was built previous to their inauguration.

It is the purpose of this article to review the hazards which are likely to be encountered in postwar structures, to set forth the underlying causes of these hazards, and to offer suggestions for their correction.

The four types of structures, or construction, which must be considered are:

1. War emergency buildings, erected since Pearl Harbor, and disposal of which is planned by the Government.
2. Post-war emergency housing.
3. Post-war industrial conversion.

This Large Bomber Assembly Plant Has Been Converted to an Automobile Factory—A Post-War Reconversion Typical of Many Being Made

4. Post-war new industrial construction.

During the war the Government erected over 200,000 dwellings, which have now become surplus property. Disposition of these dwellings is being made to municipalities and others qualified to purchase them. Few of the structures complied with local building codes when they were erected. As a result, many serious defects have been incorporated in their design. When these structures are taken over for residential puposes, and made part of the community, a very material fire and life hazard will be created. Because of the shortage of housing, and the universal desire to assist returning servicemen, it is unlikely that any major changes will be required by municipalities before they are placed into use. Not only will these structures represent a hazard to themselves, but they will also contribute materially to conflagration hazard, particularly where they are located in close proximity to each other.

The life hazard will be aggravated by overcrowding, or "doubling up" of families in these structures.

Lack of Proper Fire Stops Made This Army Warehouse a Ready Prey to Flames. Such Structures, When Disposed of as Surplus Property, Carry Their Structural Hazards with Them

Post-War Emergency Housing

Residential construction has been given priority by the Government over industrial construction, in order to provide housing for ex-servicemen and others. But a ceiling price has been established for such structures, a ceiling so low that first class work cannot be done under the present materials price schedules and labor costs.

In order to assist the builders of these houses, many municipalities are relaxing building code requirements. The

combination of poor workmanship, inferior materials, haste in erection, lack of proper control by code, and the factor of speculation on the part of the builders, all have combined to produce structures far below safe standards. In many instances, inferior substitute materials are being employed, such as fiberboard in place of lath and plaster, improperly cured lumber in place of properly cured, poorly manufactured doors, etc., so that if fire starts in a structure, its complete destruction is rapid.

In many communities, even including the largest, army cantonment buildings are being rebuilt and adapted for family occupancy. In some instances the large structures are made into multi-family houses without proper fire-stops. All in all, a serious situation has been developed under the pressure of the emergency.

Overcrowding, particularly in multiple units, will be common; heating facilities substandard; electric wiring not according to code, and other factors conducive to rapid spread of fire will be present.

Post-War Industrial Conversion

The rapid reconversion of industry to peacetime products has put a premium upon factory space. Because priority has been given to residential construction, rather than to industrial buildings, the shortage of factory space will become more acute as the time goes on. The shortage is driving many concerns to take over buildings not suitable for the products they manufacture. In addition, the Government is disposing of many federally financed war plants to private industries, and many of these plants are being turned over to processes and products for which they were not designed. Of the two, the adapting of old unsuitable buildings to new industries offers the greatest hazard. In many instances it is necessary to alter and enlarge old structures for the new occupants. Little thought is given to the age of the structure or to its fire safety. Even the permissible loading on floors is being overlooked in many instances.

In the process of converting these old structures, inferior substitute materials are being employed. And the lack of skilled labor, coupled with haste to get the work completed, creates a conflagration breeder. Because many cities are short of personnel in their building departments and fire prevention bureaus, proper supervision is missing.

Many large, rambling structures used for the assembly of materials of war will have as new occupants industries which are engaged in the production and fabrication of inflammable or highly combustible products. The majority of these plants, which were built under pressure of wartime necessity, are lacking in necessary fire resistant construction. Thus should fire occur when the new occupants have taken over, there is a serious likelihood of the structures becoming entirely involved and fire reaching stages beyond the ability of the fire department to control. Here again, the absence of fire-stops in large building area is a serious factor.

Many Emergency Housing Structures Are Firetraps. Five Lives Were Lost when this Building Burned

Dormitory-Type Emergency Housing Burns with Loss of Seven Lives. Absence of Fire Resistive Features Permits Fire to Sweep Quickly Through Structure

New Post-War Industrial Construction

While large-scale construction of industrial buildings is slowed down by restrictions from Washington, this condition will be but temporary. As buildings materials become available in larger quantity, a program of industrial construction of major size may be expected. The suspended programs will get under way almost simultaneously, with the result that city officials will be unable to give proper attention to details, such as adherence to building code requirements, nature of hazards involved in the processes to be employed in the structures, and proper fire safeguards.

When such a large program starts, it is likely that shortages in some materials will show up. Where these occur, the tendency will be to use inferior substitute materials. Instead of standard fire walls, fire partitions may be permitted. Relaxing of building code requirements and fire prevention ordinances in other respects may be also expected.

Thus even new construction may be expected to incorporate fire hazards, and other weaknesses normally controlled in peacetime construction if proper precautions are not taken.

What Can Be Done About the Problem

If a fire department has no fire prevention code and if the city has no building code, it is probable that the new construction, both residential and industrial, which will take place during the next few years will represent no greater hazard than present establishments within the city.

On the other hand, where both building code and fire prevention ordinance are on the books, the solution to the problem will be an insistence upon complete observance of these regulations.

Proper enforcement may require the addition of qualified men both in the building department and on the fire department, but the cost of these increases will be minor compared to the reduction in fire loss which can be brought about by their work.

Those requirements in a building code

which deserve special consideration in connection with new construction, reconversion or alteration of industrial structures are:

Fire walls: Extensive experience over many years has proven that fire walls of proper construction are the most effective means of restricting the spread of fire in a structure, once it has gained headway. It is important that these fire-stops extend to and through the roof of a structure. Particularly in industrial buildings, and federally financed plants erected during the war, fire walls are of major importance.

Many of the old structures which will be occupied by new industries, due to the shortage of facilities at the present time, will have had a history similar to the following. A one or two-story structure was erected on the outskirts of a city years ago, and occupied a large area. It was engaged in the manufacture of heavy machinery and served its purpose until more modern methods of manufacture, involving newer machines, was developed. This structure as time went on had additions made to it. The openings between the old and new sections were not protected. The roof was not supported in such a way as to resist a hot fire without failing. Sprinklers, when they were installed, were satisfactory if the roof remained secure. The plant ultimately grew to such a size that it would be impossible for the fire department to reach the innermost areas with fire streams in the event of fire. In such a structure, a burn-out even if the structure remained intact, would produce a damage in excess of seventy per cent of the total value of the plant and contents. Changes in occupancy may have been responsible for opening up new unprotected openings between sections of the building. As time went on, and the city expanded, the day eventually arrived when this plant was surrounded by other structures of greater value, taller, and of more modern construction. The original plant thus became a conflagration breeder. Ultimately it was vacated and remained idle until the current shortage of manufacturing space developed. Reconversion to its new use did not remove inherent hazards, due to its particular type of construction, its great area and inaccessibility to the fire department in the event of a big fire.

Where such structures are being reoccupied, it is vital that fire-stops be provided and that any openings either vertical or horizontal be properly enclosed or equipped with fire doors. If a fire in such a structure is to be kept small, proper subdivision by fire walls is vital.

Segregation of Hazards

When a new occupant takes over an old structure of the type described above, or where he takes over federally financed building used for war purposes during the war, it is imperative that the fire department check the nature of processes and materials to be employed by the new tenants in the plant. If some of them are hazardous, it is most essential that these be segregated in certain sections of the plant by the use of fire resistant partitions or fire walls. If the plant is well divided by fire walls, then the hazardous materials and processes can be further segregated by use of fire resistant partitions.

The fire department should check new occupancies to make sure that no industries of a highly hazardous nature are permitted to operate without these precautions being taken.

Fire Protection Facilities

The nature of the industry and the size of the establishment will determine the fire protection facilities which should be required.

For large establishments, as well as for the smaller ones with severe fire hazards, automatic sprinklers are most essential. The provision of automatic alarm in connection with the sprinklers is valuable in getting the fire department to the scene in the event of fire.

Where sprinkler supervisory service is available, its use is excellent insurance that the sprinkler system and alarm system remain in operable condition. Furthermore, prompt transmission of alarms of fire to the municipal fire department are insured by this service.

Furthermore, leakage of sprinkler systems or failure of sprinkler systems are readily detected, so that the establishment is never left without fire protection.

Provision of first aid fire extinguishing apparatus is in order, particularly where special hazards are involved.

The type of hazard will determine the type of first aid equipment required.

Fire Prevention Ordinances

Cities which have no fire prevention ordinances should arrange to have them enacted at once.

The fire prevention ordinance is one of the most effective agencies in minimizing fire hazards, and keeping plants and premises in such shape as to prevent fire and loss of life.

Of course, proper administration of the ordinance is essential. This requires a staff of sufficient size, and well supervised.

Fire prevention ordinance should incorporate the use of permits, licenses, record forms, inspection forms, and other forms. The application blanks should include, among other information, the name and address of the applicant, the amount and kind of material to be handled and stored.

No fire prevention ordinance is effective unless a proper inspection force is available. Qualified inspectors, especially with fire department experience, alone

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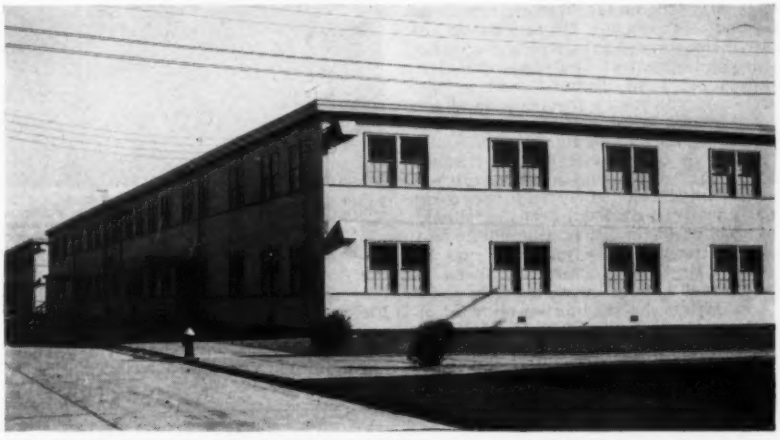


Military Barracks, Converted to Emergency Civilian Housing, Produce Dangerous Fire and Life Hazards

Fire Safety Is Overlooked in Many Emergency Housing Developments. Note Highly Inflammable Construction and Close Proximity of Buildings.

Training The Airport Fire Department

By WILLIAM BENDER, JR.

BATTLING aviation gasoline fires is a specialty demanding the greatest speed and efficiency of which a fire-fighting organization is capable. And by using scientific methods to blend speed with flexibility, Chief Pat Kane has molded the Kirtland Field (New Mexico) Fire Dept. into an airport organization of top efficiency.

Speed. . . . That is the dominant guide in fighting the plane fire. An explosion is always threatening from the flaming core of the black column of an airplane blaze; once that explosion erupts, the account of the fire carries the invariable and grim conclusion, "There were no survivors."

Where the average municipal department may encounter fires they will be content to "control," the airport organization is forced to quench the blaze with the greatest possible dispatch. They must keep in mind that people, often injured, are in the plane, and the forces of explosion are forming within the deadly nucleus of the blaze.

Although the airport fire department has a considerable amount of specialized equipment, developed by and answering their equally specialized needs, it should go without saying that any equipment is no better than the men that use it.

As in any other enterprise, speed is not attained simply by wishing for it. It is not attained by reading up on a lot of technique and methods, nor by talking about it nor by commanding it. And that refinement of prompt, smoothly-functioning efficiency demanded by a plane fire even cannot be achieved by any amount of hit-or-miss practice.

The factor to be emphasized here is the technique employed at Kirtland Field to attain this speed and efficiency and to indicate its possible carryover into the broader field of professional fire-fighting.

Chief Pat Kane Looks on While the Flankers Go to Work with the Hand Lines from the "Class 155" Truck. Note Stream from the Only Visible Turret Has Blown Flame Completely Away from the Near Side of the Wreckage

In the first place, Kirtland Field plans its own fires.

As often as possible, and you will see how he bolsters "possibility," Chief Kane conducts trial runs on a mock crash.

The field's salvage yard has provided the department with an imposing pile of wreckage: scrapped plane parts which Willow Run in its heyday never could have assembled into a single flyable craft. There's the nose section of an AT-6, part of a B-29 fuselage, a wrecked engine and prop from a C-45 and an unidentifiable mass of broken bits and pieces of other aircraft.

Combustibles have been arranged for through the refueling unit. When that organization has to drain the 100-octane from storage tanks or the fuel cells of planes, the Fire Department gets it. Used engine oil also finds its way to the demonstration area. Although all this material is unfit for planes, when splashed over the wreckage and fired, it provides a perfect facsimile of the burning at the scene of an actual crash.

But the preparation is not complete. The essentials are readied, but they are such as would provide only the usual cut-and-dried practice run.

The most important factor is the photographer.

In order to get the greatest advantage out of each test, to allow the chief to carefully assess the strength and weakness of each man's technique and to provide a definite basis for further instruction, the department has arranged to get as many action pictures as possible during the brief minutes of the test.

Later, when the uproar, the urgency and the fumes of the conflagration are not present to distract the men from a careful evaluation of the details of their

Full-Fog Versus 100-Octane and White Phosphorous

It's Still Too Hot for the Movie Cameraman Who Remains in the Background While the Firemen Quench the Remnants of Flame Clinging to the Steaming Wreckage

actions, the entire department can sit down and coolly assess the motions of each individual.

Everyone is acquainted with the motion-picture technique common in football circles. In addition to the picture-study of the opposing team, the coach frequently takes "training" movies of his own men in action. These coaches have found that the detailed information needed about each player's technique and co-ordination is obtainable only through the repetition possible with a motion picture record.

No human eye could possibly catch nor retain the flurry of action touched off by football "signals;" no more could it see the thousand details of fire-fighters at a blaze. But the impassive eye of the camera can and does see everything. And—even more important—the camera retains what it has seen without the tricks of memory with which the human mind is fraught.

So it is at Kirtland Field. Step by step Chief Kane and his men review their gambits in quenching the mock crash. The novelty to each man of seeing himself as others see him, quickly gives place to a more important impression: the chance for an intelligent evaluation of previously unknown clumsiness, wasted effort, effective attacks . . . all the good and bad points of their conduct are laid before them by irrefutable evidence of that conduct.

Even without the helpful criticism of his mates, each man could soon analyze many of his own shortcomings through the picture record.

On the broader scale, the Chief has an example to guide him in the more scientific direction of the battle. The example itself may be repeated on the screen as many times as necessary. It can be compared with the camera record of past fires and can be used as a reference when improved methods are brought into play on the next.

The complexity of the job of fighting plane fires perhaps can best be brought out by a brief review of the specialized apparatus used.

Kirtland Field has the following apparatus spotted strategically in relation to the landing strips:

a) One "Class 150"* truck made by Cardox Corp. This carries 3 tons of carbon dioxide and 500 gallons of premixed foam. The load may be discharged from any of the seven outlets. There are two boom nozzles—front and top—with a flow rate of 2500# per minute. A ground sweep chokes flame with a 2100# per minute stream of CO_2, and a pair of hand lines, designed to work the flanks of the fire, operate at 750# per min. In addition, there are two bayonet nozzles available: oversized hypodermic needles that can be punched right through the skin of the plane to douse any fire inside the fuselage.

b) One "Class 155" Mack truck designed primarily for rescue work. Carrying 1,000 gallons of water, this is equipped with two high pressure turrets which are used for blasting a channel through the fire. They operate at 650# pressure and discharge up to 300 gallons per minute. Nozzles are adjustable between straight stream and semi-fog. There are also two hand lines fitted with Hardy nozzles, which are adjustable between full-fog and straight-stream; these are brought into play to hold the "V" blown by the turrets and maintain clear passage for the rescue squads.

c) One "Class 125" Mack truck. A Hardy piston pump develops 600 pounds pressure, taking supply from a 300-gallon tank. Three hand lines get theirs from this tank, firing full-fog or straight stream from Myers high pressure fog nozzles.

d) There are two "Class 135" trucks which are the proverbial Jack-of-all-trades, one built on a Ford chassis and the other on a Chevrolet; their 4-wheel drives make them excellent for crashes which occur in the rocky, cactus-speckled desert away from the air field. The 135 has a 300-gallon capacity tank, and pump develops 300 pounds pressure on three lines fitted with Bean and Myers nozzles. Hip packs, carrying two gallons of foam, are standard equipment.

Combine this highly specialized equipment of limited water-capacity with the extraordinary emphasis on speed and it becomes obvious why frequent practice is mandatory. The time for controlling a plane fire is figured in seconds, not in minutes, and the more practice that is available, the more the airmen who are apt to survive the next crack-up.

As much as possible, the conduct of trial-runs is co-ordinated with other activities taking place on the field.

It is axiomatic that a fire draws a crowd. While many departments have denounced this as an obstacle, Chief Kane has molded it into an instrument for increasing the amount of practice his department can accomplish.

An example was the recent "Army Day" celebration, April 6th. Headquarters wanted a crowd out for their open house that day and, as ever, Chief Kane was eager for practice. The logical conclusion, satisfying both requirements, was the arrangement of another mock crash.

Hundreds of people flocked out from nearby Albuquerque, and Kane not only had up-to-date information on the precision of his crew, but—more important still—had his pictures as well.

The still pictures accompanying the article were taken of the department in action that day.

Actually, two fires were touched off on Army Day. The first, a pit-blaze, showed one type of technique; the second was concocted of some 700 contaminated gallons of aviation gasoline and oil spilled over the well-baked wreckage. Just to make things showy, if difficult, the stage was ignited with a brace of white phosphorous hand grenades.

Only the barest minimum of equip-

The Last Gasps of a Pit-Blaze. The Movie-Cameraman Moves in Close to the Final Operations of Quenching the Fire, While Both Fog and Foam Choke Off the Blaze. Later, the Man on the Right Will See Clearly Why He Had to Have On-the-Spot Correction

*U. S. Army designation.

ment was used on this one and the added complication of spattering phosphorous produced a tenacious blaze that lasted some 30 seconds before full control was established.

On May 2nd, a representative of a state-wide businessmen's organization asked permission for his group to visit the field. The public relations office contacted Chief Kane for another fire. Everything went off as scheduled: practice, pictures and publicity.

After all this description one may rightfully ask for more tangible proof of the effectiveness of the technique. Look at some of the Kirtland records:

1. On June 13, 1945, a Superfortress, coming in for a landing, crumpled a wheel and ran amok. It sideswiped a B-17 and stormed over a C-64 and an AT-6 on the parking apron, exploding the two latter planes. Dragging both aircraft, the B-29 nosed into a hangar building, and itself broke into flame. The Kirtland Fire Dept. rolled up to the hangar and doused the whole conflagration . . . time: 45 seconds. Of the ten men in the ship, the two pilots were injured when the nose section crumpled, but the rest of the crew walked away with only minor cuts and bruises.

2. After contacting the ground on a normal landing, a Lockheed transport ground-looped. The landing gear collapsed, rupturing the fuel tanks and the entire ship was suddenly blanketed in flame. The Kirtland apparatus was out and had quenched the fire before any of the 17 persons aboard were injured. In the absence of a definite time on this crash, the following will probably indicate the speed with which the blaze was extinguished: 19 sacks of air-mail letters were taken from the plane later and were not even scorched.

Practice and photos had paid off to the tune of twenty-seven human lives . . . ample reward to a conscientious department.

New Haven Firemen Use Wetting Agent on Fire

What FIRE ENGINEERING's records indicate may be the first actual use of a commercial "wetting agent" by a metropolitan fire department on an actual fire occurred early in June in the City of New Haven, Conn., when Fire Chief Paul P. Heinz called upon this modern application of an old idea, to help quell a serious fire in Dave's Mill Supply, Inc., waste paper concern, at 71 Prince street, that city.

The fire, for which two alarms were sounded, did an estimated $5,000-$10,000 damage, destroyed a considerable amount of paper and gutted most of the first floor of a two-story wood and brick building.

The first alarm for the fire, origin of which has not yet been determined, was received by the fire alarm bureau at 1:15 A. M. fire box 122 at Lafayette and Prince streets. It was turned in by a passerby who saw smoke pouring from the paper warehouse. This alarm brought Engines 1, 11 and 12, and Ladders 1 and 2, under direction of Battalion Chief Henry Weber.

Upon arrival, firemen discovered that the fire had already gained considerable headway on the first floor and threatened to spread, through walls and ceilings to the second story of the building.

As the paper-fed flames continued to offer firemen stiff resistance, Chief Weber ordered a second alarm, at 1:35 P. M., which brought Engine 2 and 3, together with Deupty Chief Richard Greene and Chief Paul Heinz.

At the height of the fire seven streams were operated on the fire. After Chief Heinz arrived and the full nature of the contents of the structure became known, preparations were made to employ a wetting agent for a more efficient overhauling and final extinguishment of the stubbornly persistent blaze.

As soon as the fire was knocked down with the heavy water streams, and the fire-fighters' problem became one of ferreting out and killing the lurking fires in the baled stock, Chief Heinz introduced the surface tension reducing chemical—pre-mixed—into the large booster tank which the fire department recently built primarily to further its experiments using this and other extinguishing agents.

Chief Heinz in his report to FIRE ENGINEERING had this to say:

"The fire involved waste paper storage with large piles of loose paper and baled-paper. We extinguished the main body of fire with heavy streams and applied the wetting agent on the smouldering piles with a solution premixed in our booster tank. We used approximately 500 gallons of water through 1½-inch lines with a H.V. (high velocity) fog-head. There was no rekindle, once the wetting agent was applied.

"Generally at fires of this type there must be a complete overhauling, to assure complete extinguishment. This was not necessary in this case, and the department saved many hours of man labor by the use of the wetting agents."

Determining Carbon Monoxide in Air

A new method of determining the amount of carbon monoxide gas contained in air, based upon the quartitative reaction of red mercuric oxide with the gas, is described in a report released today by the Office of the Publication Board, Department of Commerce (PB-5921; photostat, $8; microfilm, $1.50; 111 pages, with tables and drawings).

Carbon monoxide reacts with red mercuric oxide to form carbon dioxide gas and mercury vapor. An accurate determination of the amount of carbon monoxide contained in air may be made by measuring the weight loss in the chemical reaction, or by utilizing a special light-weight, portable instrument.

Measurements may be made over a range of zero to three per cent carbon monoxide (zero to 30,000 parts per million of air), with an accuracy of five to 10 per cent. The time required for the test is approximately three minutes.

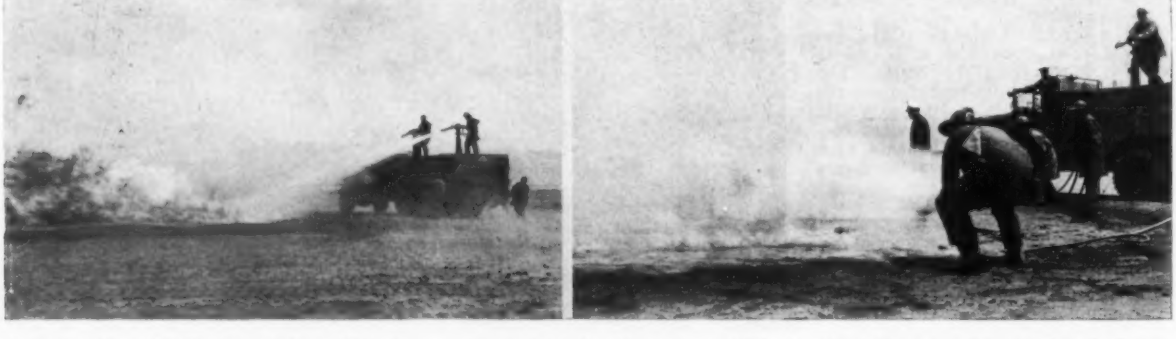
Signs Are "Signing Off"

According to the International City Managers' Association, the move to prohibit, or regulate overhanging signs in business districts of municipalities is gaining headway.

In addition to the recently announced action taken in New Rochelle, N. Y., sign congestion in Philadelphia is being reduced by action of the park commissioners in prohibiting the erection or use of billboards within 190 feet of boulevard, park or parkway boundaries. Limitations have also been placed on the size and spacing of signs on adjoining property.

In Miami, the only types of signs now permitted to project over the sidewalks are those on the outer edges of marquees, 10 feet above the sidewalk, and solidly fixed ventical signs projecting not more than four feet from the building wall. A new ordinance requires the removal of all existing signs not conforming to these regulations.

Similar regulations are now being enforced along Woodward avenue, Detroit's main business artery. Last fall, the Michigan supreme court held that overhanging signs may be eliminated or controlled by the city.



Left: The Class 155 Truck in Action. High Pressure Turrets Blast the Flame Away While the Hand Lines Are Being Limbered. Rescue Squads, During an Actual Crash, Would Be Preparing to Enter Through the "V" of Water. Right: Turrets on the "155" Stand by While the Hand Lines Hold the Flanks of the Fire and Maintain the Exit-Channel for the Hypothetical Rescue Squads

Speaking of Headaches-

Here Are Some of the Many Perplexing Problems Faced by Fire Apparatus Builders Today

FIRE apparatus builders are today laboring under tremendous difficulties, brought about by governmental regulations, strikes in industrial fields, shortages in materials and component parts and shortages in qualified labor.

To secure a complete picture of the many problems involved, a survey was recently made among the leading fire apparatus builders, in which the following questions were asked:

1. What approximate increase in cost of fire apparatus do you believe will result from the removal of price ceilings?
2. Will the removal of ceiling prices speed up production or apparatus?
3. What current problems, in your opinion, continue to delay the production of apparatus?

Replies were received from seven, representing the leading builders in the field, as well as the smaller ones. Irrespective of size, the difficulties encountered are common to practically all.

The replies are printed below in full, for the builder can best tell his own story.

No. 1

1. I believe fire apparatus as a whole will go up approximately 20%. I cannot see how it can help that much any way. Our labor increase alone since 1942 has been over 35%. Our overhead is twenty odd per cent up and we are now getting increases from purveyors running 15 to 20%, plus the fact that we had material increases over the last two or three years without any fire truck adjustment prices.

2. I doubt if removing the ceiling price will increase delivery dates at this time; they will, undoubtedly, over a year's period. Right now we have not recovered from the strikes of a few months ago, and are again set back because of railroad and coal strikes which effect many of our purveyors.

Another item delaying deliveries is that the buyer wants to change every design the manufacturer produces; this not only increases the cost but delays production much more than people realize.

Another delay is that none of the employees are turning out the same amount of work per hour that they did before the war and the Union has slowed up production by a lot of new jim-crack ideas that have interjected into business. For example, we have a Closed Shop contract; we have a 10 minute rest period in the morning and a 10 minute rest period in the afternoon. We have a 5 minute wash up period at noon and at night. This wash up plan is supposed to give workmen an opportunity to go out of the plant at quitting time all clean and ready to go. What actually happens is that they start to get ready for the wash up period before-hand so as to be ready to go and save the 5 minutes. This is 20 minutes a day, times our total number of employees, of production time we lose.

Another item that slows up production is the condition of the material that comes to us. The steel frequently is poorly fabricated, rusted, dented and bent, half of the fabricated parts that we get have to be disassembled, serviced and reassembled and that goes for about everything. All of these things have a direct bearing on the total number of hours it takes to produce a job, as well as affecting the cost.

The labor situation is affected by the GI unemployment with pay, plus the fact that all of the boys returning want to earn some money for doing nothing that they heard about when in the service. From their standpoint it is too bad that Santa Claus had to quit before their turn came but, like all give-away projects, that one had to end and we are all paying the price now.

No. 2

1. It is difficult to state just how much of an increase in the price of apparatus will result from the removal of price ceiling in that some component parts that go into the building of apparatus have not as yet been increased, and we do not know just how much of an increase to expect. We have had increases in the price of various types of hose, ladders, brass castings, steel and labor, and it would appear that 25% to 30% increase will be necessary.

2. Personally, I do not think that removing the ceiling prices is going to speed up production of apparatus in that most of the apparatus builders are loaded up with orders taken at low prices, and, due to the difficulty in securing steel and other materials, it is going to keep production down for a long time.

3. The trouble today in every industry, and the fire apparatus industry is no exception, is that we are not getting the work out of the men that we did prior to the war. With us the man hours in building apparatus has increased considerably even though better facilities are provided, and until such time as the American worker really gets down to work and gives eight hours work for eight hours pay, production will lag.

No. 3

1. We are unable to tell you what the industry in general will do regarding increased prices as a result of ceiling suspension. Incidentally, the ceiling has been suspended, and not removed, which means that the OPA regulations can again be enforced.

The prices which were frozen were prices prevailing in 1941. Costs since that time have increased steadily. The present labor costs are more than 40% higher than in 1941. Material costs have increased approximately 25%.

Ceiling prices of fire apparatus, of course, were a severe hardship on the industry and resulted in substantial losses to the manufacturer. This situation became even worse when the OPA suspended the ceilings on standard parts. This took effect March 15, 1946, under Amendment #10 to S.O. #129. At that time, most of the manufacturers in this industry had a backlog of from six months to a year and six months on their books. Immediately upon notification of price control suspension on parts, we received notices from our suppliers increasing prices to us anywhere from 15% to 40%.

This meant that the material we would buy *now* would be that much higher than it was in 1941, and could even be increased further before the contracts on hand were provided for, which in some cases include shipments into the first quarter of 1947.

Naturally this action caused considerable concern in the industry and some of the other manufacturers, as well as ourselves, discontinued quoting, and withdrew outstanding proposals immediately. As of this date, we are still not quoting.

Our contracts, because of the nature of this business in dealing with municipalities, were taken at firm prices. None of our suppliers will quote firm prices without escalator clauses permitting them to make increases to the price levels that will prevail at time of shipment.

Strikes and other conditions make the shipping dates unpredictable—so you can see that the industry would have been faced with a serious problem if they had continued to accept contracts at fixed prices when they were unable to accurately determine costs.

This action also seriously affected the tremendous backlog of orders in the hands of the manufacturers and not only wiped out any possible profit but further increased the losses that it will be necessary to sustain on the backlog.

I would assume from present indications that all manufacturers will have to ask for at least 25% increase in the sale of the finished product. Even this increase, I believe, is a little on the conservative side because contracts received today will be in our hands probably a year before shipment is made and costs that far in advance are rather unpredictable.

2. We do not believe the suspension of ceilings will step up the production of fire apparatus. Everything possible has been done by the industry to expedite materials so that the large backlog of unprofitable business could be disposed of as rapidly as possible. The only hope we see for a stepped-up production is immediate settlement of strikes.

3. I believe this question is answered under the two foregoing numbers. There is an unprecedented market for the sale of fire apparatus but the delays in getting material are seriously handicapping any continuity of production—one day it is steel; the next day it is forgings, and the next day it is something else. So until the strike situation generally

clears up in the plants of our suppliers of raw materials, we do not believe apparatus production can be very greatly increased. Unless the manufacturers receive some immediate relief in the procurement of material, there is a good possibility that even present low production schedules will be seriously affected.

No. 4

1. It seems obvious to me that the prices of fire apparatus must increase at least 25% as of today, and no doubt, an additional increase will be necessary in the very near future.
2. The removal of ceiling prices will not speed up fire apparatus production because the main hindrance today is lack of materials due in our opinion to labor difficulties on the part our our vendors.
3. This is answered by #2 above.

No. 5

When the necessity for priorities was ended, as you can realize, there was an immediate demand on the part of hundreds of cities for the fire apparatus. Keep in mind that at that time the prices were frozen at our 1941 levels. For that reason, we were somewhat reluctant to book very much business at those prices, because frankly we were afraid of rising costs.

The Administration at that time, as you will remember, assured every one that the line was going to be held, and with this assurance we proceeded to take orders—all on 1941 price levels.

You, of course, know that the holding of the line didn't work out and that the so-called line was smashed; and today most fire engine manufacturers find themselves with a lot of business on the books which, instead of being an asset, may very readily be turned into a liability.

There have been numerous delays in production schedules, as a result of the many strikes and work stoppages of one kind and another, all of which interfered with our ability to procure from our suppliers the necessary materials with which to work. The result of this is that apparatus that should have been delivered months ago is still on order. And the outlook today isn't very much more promising than it was several months ago. The coal strike, the railroad strike and other threatened strikes without doubt will throw further delays on production. These past delays and the delays that we are expecting right now have so interrupted our shop schedules that our production for probably the next twelve to eighteen months is already sold; that statement will answer your inquiry, "Will the removal of ceiling prices speed up production?"

Since, when we put a price on a fire engine for sale today or tomorrow, we must take into consideration the fact that it cannot be delivered for more than a year then the question is, what would be a fair price to the manufacturer for a fire engine that will not be delivered for more than a year? In order for us to put a price on a fire engine, we have to estimate what our costs are going to be a year or a year and a half from today; and I think you will agree that that is a problem that no one in this country right now can answer with any degree of accuracy.

If we could deliver the fire truck we are selling today in six months, which is a normal delivery schedule, we would have no trouble estimating our costs But when we must think in terms of two or three times six months, the answer is that we don't know what the cost is going to be. It is our understanding that a lot of heavy machinery, the delivery of which is in about the same class as fire apparatus, is being sold only on the basis of the purchaser agreeing to pay whatever the price may be at the time of delivery. That would be an easy solution to our problem, except that we fear that not many cities could legally purchase under such a contract.

Possibly the removal of price ceilings will have a tendency to slow up the purchase of fire apparatus by municipalities. We say that because it is quite evident that many municipalities recognized the fact that the price ceilings would ultimately have to be removed and they, therefore, took advantage of the fact and bought just as much apparatus as they possibly could on the 1941 frozen list. Now, that the ceilings are gone and there is no such inducement, the abnormal demand that we have been experiencing for the past six or eight months will probably be slackened and this, in our opinion, would be a good thing for the entire industry.

We are having much more difficulty today securing the necessary materials in quantities and on time than we had during the peak of our war-time manufacturing and those troubles still continue. There's hardly a day passes but what some important item needed right now cannot be delivered because of a strike or because our suppliers fail to obtain needed materials. The elimination of price controls on some raw materials or semi-finished materials may help in that respect, because we are quite sure that many of our suppliers fail to deliver to us because they are tied down with an improper price ceiling; for example, I might mention the item of ladder stock which has been very, very tight for several months, and as we understand it it will remain that way until the mills who turn out ladder stock get a suitable price for their product. The Governmental controls unquestionably have been responsible for many of the delays in securing equipment.

Another point of importance is that our unfilled order list at the present time is higher than it has ever been in the history of this business. And I think that condition prevails in most of the major manufacturers in this industry. The reason for this heavy backlog is that each month we are selling more than we can deliver. Just now, we are not bidding at all because we cannot determine where we think the price should be, and until we can compile a little more accurate information than we have on hand at this writing, we probably will submit very, very few proposals for the furnishing of new equipment.

No. 6

1. It is difficult, if not impossible, to predict the increase in motor fire apparatus prices on a percentagewise basis, which will result from the recent order of OPA, but in view of the fact that our material and component unit costs have increased from 5% to 25% since March, 1942, and our labor costs approximately 36% since March, 1942, it would be our opinion, in the event the entire industry will average the same increase in materials and labor, that fire apparatus will cost from 10% to 25% more than in March, 1942.
2. Removal of price ceilings from motor fire apparatus, insofar as we are concerned, will have no effect whatever upon increased production of apparatus, but removal of price ceilings from our suppliers of component automotive units and allied products has definitely speeded up their delivery of materials to us, and which eventually will improve our delivery situation, as the major reasons for delays in production of fire apparatus in our plant have been occasioned by inability to get deliveries from our suppliers plus a shortage of manpower.
3. The current problems still are inability to get materials and component units in proper quantity at the time they are needed, or inability to balance inventories which inability in the past has resulted in many fire engines being 90% completed but waiting for minor items from plants which were either strikebound or were unable to produce on account of material or manpower shortages.

One reason why the matter of pricing is so unpredictable today is on account of the escalator clause in most acknowledgements or acceptances of purchase orders for materials and units, which permits the supplier to price his commodity at time of shipment in accordance with costs prevailing on that date. Most of our suppliers operate on that basis, which means that we do not know the cost of what they are supplying to us until the date of shipment. Until this situation becomes stabilized, it will be difficult to predict the prevailing price of fire apparatus at any time in the future.

No. 7

We cannot see how removal of price ceilings on fire apparatus will directly speed production at this time. Our main hold-ups are in obtaining commercial and special chassis from the various manufacturers and in obtaining a sufficient quantity of skilled labor. Standard metal and construction materials, as well as most minor equipment items are coming through fairly well.

In line with the above, we feel that both chassis and labor will gradually get somewhat better as soon as the "strike" and "rest" periods are over. Just how soon we will feel the effect of these is difficult to estimate.

More Chicago Hotel Fires

Hotel fires continued to claim victims and plague fire and city officials in Chicago as June waned. Following a fire on the twenty-first floor of the forty-six-story Morrison Hotel, which caused only minor damage, and no casualties, and which brought praise for the manner in which the fire department was called and controlled it; another and more serious blaze wrecked a thirty-room hotel at 722 South Halstead Street, June 26, killing two and badly injuring one, and driving twenty others to the street.

The cause was undetermined but Fire Division Marshal Earl Bauer said the fire originated on the second floor of the three-story building. The first floor, occupied by a leather firm, was undamaged.

What Are The Present Needs of the Fire Service?

Survey Shows Tremendous Demand Ahead for Motor Fire Apparatus and Other Fire Protection Equipment

In order to determine the needs of the American Fire Service for motor fire apparatus, fire alarm equipment, hose, fire stations, and other improvements during the next few years, this journal recently conducted a survey among the fire departments of cities and towns in the United States. The survey included communities of 1,500 population and over. Of the 2,000 questionnaires mailed, 755 were returned with the required information.

The total population of the 755 communities reporting was 24,339,917.

The total population of all communities in the United States of 1,500 population and over is, according to census figures, 66,590,250. Thus the return on thirty-seven per cent of the total urban population indicated above has been accomplished in this survey.

In order to attain total apparatus figures for all communities, it is then necessary to divide the number of different types of apparatus included in the survey by .37 in order to determine the approximate number which would represent the need of all communities in the country over 1,500 population; the figures secured by this operation will, of course, represent the needs of the cities reporting, plus those of the cities not reporting.

Similar results could be secured by multiplying the reported needs of the various cities by 2.7 to secure the requirements for all cities in the country over 1,500 population.

The results in either case could be the same.

With a return of over one-third, this prorating will give a fairly accurate overall picture of the needs of the American Fire Service insofar as apparatus and equipment are concerned.

The question asked on the questionnaire was "What improvements do you consider are needed today by your fire department?"

The total needs of the fire departments reporting and which represented, as indicated previously, a total population of 24,338,917, are as follows:

Pumpers, 1,155
Aerials, 351
City service trucks, 134
Tank trucks, 23
Salvage trucks, 14
Rescue trucks, 35
Chiefs' cars, 68
Pick-up trucks, 59
Squad cars, 30
Hose wagons, 24
Booster and fog trucks, 51
Fire stations, 562
Hose, 1,672,000 feet
Fire alarm buildings, 31
Fire alarm boxes, 5,243
Boards, 39
Circuits, 99
Complete systems, 142
Extensions, 4
Radio, 30
Sirens, 17
Rebuilding fire stations, 53
Drill towers, 2
Ambulances, 19
Fire alarm improvements, 134
Water towers, 3

Taking these figures and multiplying them by 2.7, we determine the approximate need for all fire departments of a population of 1,500 and above. The totals secured by this pro-rating are as follows:

Pumpers, 3,118
Aerials, 948
City service trucks, 497
Tank trucks, 72
Salvage trucks, 38
Rescue trucks, 95
Chiefs' cars, 184
Pickup trucks, 159
Squad cars, 81
Hose wagons, 65
Booster and fog trucks, 138
Fire stations, 1,527
Hose, 4,514,000 feet
Fire alarm buildings, 84
Fire alarm boxes, 14,156
Boards, 105
Circuits, 267
Complete systems, 383
Extensions, 11
Radio, 81
Sirens, 46
Rebuilding fire stations, 143
Drill towers, 5
Ambulances, 51
Fire alarm improvements, 362
Water towers, 8

A word of explanation is in order with regard to the type of units included in the various listings above.

Under "pumpers" are included straight pumpers, pumpers with hose bodies, triple combinations, quadruple combinations and quintuple combinations, where the latter two were equipped with large pumps.

If only a small pump were included on either of the two, it was included under either "city service trucks" or "aerial trucks."

Under "tank trucks" were included tank trucks with small booster pumps as well as straight tank trucks.

Floodlighting trucks are included either under salvage trucks or rescue trucks, depending on other equipment carried.

Under "pick-up trucks" were included fire alarm trucks, utility trucks and other general utility units.

"Booster and fog trucks," included also forest and brush fire fighting units and crash trucks.

The figures for aerials and city service trucks may prove high, as small communities of from 1,500 to 5,000 population would not ordinarily be interested in these, especially the aerials, and the smaller communities were included in the prorating of survey figures over the total population group above 1,500 population.

A summary of the above figures shows that the total of all pieces of apparatus

"All Gummed Up"—but New York Firemen "Stick It Out!"

New York City firemen washing down at a messy fire involving a truckload of chewing gum in the Holland Tunnel. Washing up later was as tough a job as cleaning up the fire. No cracks about that "stuck up" New York Fire Department.

which are needed today, excluding chiefs' cars and pick-up trucks, is 5,052.

Rather surprising is the great number of fire stations needed, totalling 1,527. Although many of these will not be built for some years, due to the shortage of building materials and the question of priorities for housing for veterans, still they are in the picture for future construction.

Fire alarm systems are also in for considerable improvement, with a total of 14,156 new boxes needed and 383 complete fire alarm systems anticipated. In addition to the listings given in the tables above for fire alarm improvements, many stated "fire alarm improvements" without specifying the nature of these improvements. Thus the figure 362 for "fire alarm improvements" may increase the number of improvements to fire alarm systems listed in the other columns.

As no mention of "radio" was made in the questionnaire, it is surprising that thirty fire departments voluntarily added data on their plans therefor. Had a specific question been asked on this subjects, there would doubtless have been many times as many replies, indicating that fire department radio was in future improvement plans.

All in all, it appears that there is a very strong market for fire apparatus and equipment, which may be expected to persist for several years.

It is hoped that in an early issue it will be possible to give further details on the fire apparatus units and other fire department improvements which are scheduled for the next two years. These figures will include only improvements for which definite plans have been made, and of which there is certainty that they will be carried out.

Acknowledgment: To the host of Fire Chiefs who participated in this survey, we extend our thanks. The completeness of the tabulation is due entirely to their prompt and generous cooperation.

San Francisco Gets New Apparatus

Nine new pieces of fire apparatus, recently received as the first post war shipment of fire equipment the city has had, have been placed in service by the San Francisco Fire Department.

The new equipment, consisting of five 1000-gpm pumpers and four "water tank units," each equipped with a 400-gallon tank, were delivered to the city early in April by the American-La-France-Foamite Corporation. Immediately upon receipt of the apparatus, they were tested under the supervision of Chief Engineer Albert J. Sullivan and assigned to replace older equipment.

A public display of the new equipment was held in the Civic Center on April 11, at which time Mayor Roger D. Lapham, Fire Commissioners Coons, Sullivan and Fixa, Chief Sullivan and other chief officers of the Fire Department made an official inspection.

Chief Sullivan assigned the new pumpers as follows: Engine 1, 451 Pacific Avenue (mercantile-waterfront district); Engine 2, 460 Bush Street (downtown business section); Engine 3, 1067 Post Street (downtown apartment house-hotel section); Engine 12, 115 Drumm Street (waterfront-produce mart section); Engine 13, 1458 Valencia Street (Mission District business and densely populated residential section).

The four water wagons (officially designated as "chemical companies," a carry-over from the soda-acid days) were assigned as follows: Chemical 1, 1814 Stockton Street (North Beach); Chemical 9, 349 Hermann Street (lower Haight Street district); Chemical 10, 2098 San Jose Avenue (Ingleside district); Chemical 12, 1091 Portola Drive, (St. Francis Woods-West Portal district).

With installation of the new water tank apparatus, replacement of all soda-acid type chemical companies was accomplished. The old chemical rigs will be retained as reserve equipment.

Several new houses are slated for construction as soon as materials are available. One is scheduled for the Sunset-Parkside District, another near the Metropolitan Housing Project and another house, to be built near Sanchez Street on Market Street, will combine Engine 27, Truck 6, Chemical 9 and a section of the Salvage Corps as well as provide headquarters for the Battalion Chief.

In addition, several old houses are scheduled to be rebuilt.

BOB GREENOCK.

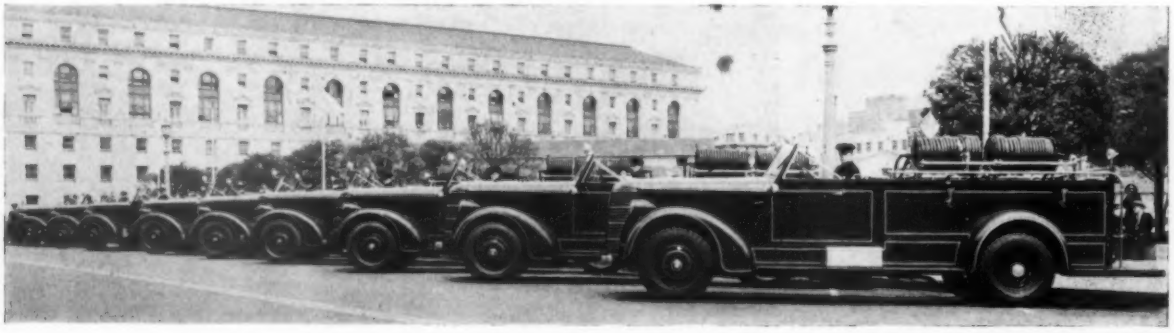
Indiana Inaugurates Officers' Conferences

A new type training program for fire departments in the State of Indiana, an officers conference, was held in Evansville recently. It was inaugurated by Robert F. Hamm, Director of Fireman Training, Indiana Inspection Bureau, and Francis Hartman, Fire Department Instructor, Purdue University.

Some of Those Attending the Indiana Officers' Conferences

The program included one week of conference, followed by another week of fire school. Thirty-nine officers at the conference discussed such subjects as leadership, duties, training, fire fighting technique, operation of pumpers and so on. Following the conference, Chief Charles Sensmeier and his two department instructors, Captain Arthur Zumstein and Captain Russel Joyce, arranged for the entire fire department personnel to receive a week of training in evolutions and the practical operation of equipment. Companies were brought to the fire school and worked as teams, under the direction of their respective officers.

Motion pictures of the evolutions will be included in the sustaining training programs, to be continued in that city.



San Francisco's New Apparatus

Here are nine new pieces of equipment delivered to the San Francisco Fire Department by the American-LaFrance-Foamite Corporation. This, the first post war delivery of fire equipment, consists of five 1000-gpm pumpers (left) and four "water tank units." The scene is in San Francisco's Civic Center where the rigs were lined up for public inspection April 11. The State Building is in the background.

More Than Half of Nation's Fire Apparatus Over-Age

Survey Discloses Imperative Need of Replacing Obsolete Major Equipment

THE deplorable condition of the major fire fighting equipment upon which the fire service of the nation must rely in its struggle to suppress fire is indicated by the survey recently completed by this journal.*

Although the basic information received covered the age of all forms of motorized vehicles, from water towers to chiefs' cars, the most important and enlightening data was that bearing upon the two major classifications of apparatus, i.e., pumpers and ladder trucks, for within these two groups are included the fundamental facilities upon which the fire service must depend for saving life and property.

If over-age in any fire department facilities is to be deplored, it is within these brackets—particularly in the field of life-saving apparatus, aerial and service ladder trucks. Yet it is in this field that we find some of the most antiquated apparatus — aerial trucks 30 to 40 years old and city service trucks that bear the scars of as high as fifty years of battle—and are still on call.

It was doubtless to be expected that this, FIRE ENGINEERING's first survey of obsolescence since before World War II, would disclose some disturbing information; it is common knowledge that during the war period few fire departments were able to add new apparatus, or recondition many old units. However, despite this fact, it was hardly expected that 51.46 per cent of pumpers and 73.6 per cent of the city service ladder trucks, would be "over-age" (as measured by the old-age limitations established by the National Board of Fire Underwriters). Yet that is what the survey shows—over 51 per cent of all apparatus in these classifications 15 years old, or older.

If we were to omit the apparatus delivered since the war's end—units "one year old" or less, the picture would look still darker. As the data disclose, although 51.64 per cent of the pumpers are over-age, only 31.5 per cent of aerial trucks are so classified, whereas 73.6 per cent of the city service trucks are out-moded. An analysis of the reports shows that although there has been a considerable delivery of aerial ladders in the last twelve to eighteen months, that of new city service trucks has been negligible. In fact, in some localities almost as many quads were delivered as service ladder units.

Although the survey did not attempt to break down the apparatus in use and in reserve by types and kinds, it might be well to point out that it suggests that aerial ladder trucks are finding their way more into smaller communities than was the case prior to this journal's pre-war obsolescence survey. Doubtless this may be partly due to the rising popularity of the metal, one-man-control aerial, which is ideally constituted for the smaller departments.

Although no attempt was made to secure data on the delivery and age of metal versus wood aerial ladders, it is safe to assume that the great preponderance of aerial units delivered in the last year or two have been of the metal type, due to the shortage in suitable wood, as well as to the popularity of power-operated aerials. On the other hand, very few, if any, of the over-age aerial ladder trucks are of the metal type.

Perhaps the most disturbing factor brought out by this study is the evidence that over-age apparatus units are found in communities where the failure or loss of a single piece, in the pumper or ladder classification, would leave the respective communities practically stripped of all effective fire fighting equipment. The number of towns and villages that are relying upon apparatus of the vintage of 1920 or before is greater than is generally believed. Not a few reporting committees are depending almost entirely upon apparatus converted from commercial and pleasure motor vehicles thirty years old, or older.

Here are the statistical tabulations showing the age groups according to the three apparatus classifications: pumpers, aerial and city service ladder trucks.

AGE OF AERIAL TRUCKS IN SERVICE

Age in Years	Percentage of Total in Service
1	12.3%
2	4.8
3	2.74
4	4.9
5	6.75
6	6.85
7	6.16
8	6.65
9	5.7
10	3.42
11	2.74
12	2.05
13	0.685
14	1.37
15	3.43
16	4.1
17	2.74
18	3.43
19	2.74
20	2.65
21	2.05
22	2.74
23	1.30
24	1.44
25	1.47
26	1.95
27	2.05
28	0.66
29	0.7
30	0.52
31	0.15

Aerial trucks over 15 years in service represent 31.5% of total.

AGE OF PUMPERS (INCLUDING TRIPLE COMBINATIONS)

Age in Years	Percentage of Total in Service
1	4.2%
2	3.9
3	4.7
4	3.96
5	4.17
6	5.24
7	4.5
8	3.54
9	4.4
10	3.01
11	1.82
12	1.6
13	0.95
14	1.5
15	1.82
16	2.68
17	4.8
18	4.27
19	3.64
20	3.42
21	3.2
22	4.1
23	2.32
24	4.4
25	3.20
26	2.48
27	3.24
28	2.55
29	2.25
30	1.71
31	1.07
32	0.64
33	0.85
34	0.23
35	0.19

Pumpers over 15 years in service represent 51.64% of total.

AGE OF CITY SERVICE TRUCKS IN SERVICE

Age in Years	Percentage of Total in Service
1	0.78%
2	0.91
3	1.11
4	1.28
5	1.14
6	1.08
7	1.04
8	1.94
9	3.00
10	3.66
11	2.83
12	1.94
13	1.88
14	2.43
15	1.34
16	3.78
17	4.66
18	3.83
19	2.94
20	5.50
21	5.66
22	4.78
23	4.00
24	8.30
25	6.65
26	5.67
27	4.16
28	3.38
29	4.5
30	3.03
31	1.88
32	0.96
33	0.92

City service trucks over 15 years in service represent 73.6% of total.

*The details of this study are covered in the companion article, "What Are the Present Needs of the Fire Service," appearing elsewhere in this issue.

Jersey City Pay Raise Proposed

The City Commission of Jersey City, N. J., proposed in June, to grant the 700 patrolmen and firemen increased salary of $500 to $1,000. The proposal will receive a final hearing before the commission July 2, and if approved will be presented at a referendum on the November 5 election.

German Air Foam Details Disclosed

The U. S. Department of Commerce recently disclosed details of mechanical air foam as produced in Germany prior to V-E Day.

The report on this air foam was originally made to the Department of Commerce by George A. Getz, Ph. D., of the U. S. Combined Intelligence Objectives Committee. An abstract of Dr. Getz's report follows:

At various industrial plants visited the best mechanical air foam solution used was said to be that manufactured by the subject firm. The object was to determine how the solution was prepared.

The owner, Erich Sthamer (son of the founder, Dr. Richard Sthamer) was quite cooperative and gave all information sought.

The firm was founded in 1896 and prime business was the manufacture of saponine to be added to beers to increase their foam stability. In 1934 they began to develop a method for the manufacture of a solution that could be used with water to make fire extinguishing air-foam. The following was given as production figures:

Year	Production in Kilograms
1936	15.265
1937	40.089
1938	161.961
1939	221.586
1940	353.986
1941	634.602
1942	487.318
1943	983.529
1944	2,530.358

The manufacturing process consists of digesting hoof and horn meal of about 2 mm. size particles with calcium oxide (Ca O) in a pressure cooker at between 120 and 130 degrees C. This requires from 3/5 to 1½ hours depending on the raw material. At this stage insoluble material is removed by filtration with filter press. The resultant filtrate is then neutralized with 60 degrees Be sulfuric acid to a pH of about 5.8. It is again filtered and the filtrate concentrated until a specific gravity of 1.14 to 1.15 is obtained while near its boiling point. Ferrous sulfate is then added—5.75 Kg per 1000 liters of solution. Sodium benzoate is added also—11.25 Kg per liter of solution. It is then cooled and filtered ready for shipment.

Six to eight per cent of the solution is added to water before the incorporation of air to create the foam.

New Jersey Fire Safety College

The New Jersey Fire Safety College, sponsored by the Newark Safety Council's Fire Prevention Committee and ten state cooperating organizations interested in fire prevention, held its sixth and final session the end of May with 587 fire-fighters completing the course and receiving graduation certificates.

A total of 1,487, from plant fire brigades, paid and volunteer fire forces, including many officers from every section of the state, enrolled in the sessions. Attendance at five of the six sessions was required to merit a graduation certificate. One-fourth of the graduates were veterans who will make a career of fire fighting.

The Fire Safety College opened on April 26 last with a session every Friday night through to the end of May. The subjects in the curriculm included: the post-war fireman; fire gases; ventilation in burning buildings; automatic sprinklers and the fire department; magnesium and metal fires; fire hazard classification of burning materials; airplane crash fires; fire extinguishers and chemical fire extinguishing systems; flammable gases and electrical hazards.

Organizations cooperating with the Newark Safety Council in the program were: The New Jersey State Fire Chiefs' Association; Fire Fighters Club of the Newark Safety Council; The Fire Insurance Rating Organization of New Jersey; American Society of Safety Engineers, New Jersey Chapter; New Jersey Association of Insurance Agents; National Board of Fire Underwriters; New Jersey State Firemen's Association; U. S. Department of the Interior, Bureau of Mines; Essex County Insurance Agents Association and the Underwriters' Laboratories, Inc.; Chief Roi B. Woolley, Assistant Editor of FIRE ENGINEERING, spoke on post-war firemen.

Fire Chiefs Interested in New Jersey Fire Safety College Program

H. B. Sleeper, Engineer, Public Servcie Electric & Gas Company, points out electrical hazards. Left to right: Deputy Chiefs Thomas E. Fitzmaurice and William F. Garrity of Bayonne; Deputy Chief Roy B. Wright, Richfield Park; Fire Chief Alf Olsen, Ridgefield Park; Deputy Chief Harry Sommers, Newark; H. B. Sleeper; Chief W. H. Ritzman, Rahway; Chief C. H. Dougal, Camp Shanks.

Death Claims Arthur Sullivan

Arthur G. Sullivan, who in May, 1946, became vice-president of the Fyr-Fyter Co. of Dayton, at the time the latter took over the control of the Buffalo Fire Appliance Corp. of Buffalo, died Sunday, June 30, following a long illness.

He was born in Vancouver, B. C., June 16, 1890.

A. G. Sullivan

Few officials of the fire apparatus and equipment industry had a wider circle of friends and acquaintances throughout the fire service than Arthur Sullivan. His passing is a loss to both the service and the industry which he did so much to further.

Mr. Sullivan's entry into the fire apparatus field was with the American-LaFrance-Foamite Company, with which he remained for twenty-three years. He left that organization in May, 1939, and the following October joined the Buffalo Fire Appliance Corp. as sales manager of the Apparatus Division. Three years later, in 1942, he was appointed general sales manager, in full charge of sales of not only motor fire apparatus but of Buffalo portable and wheeled fire extinguishers.

When the Fyr-Fyter Co. acquired the stock of the Buffalo Fire Appliance Corp. on March 15 last, the latter was continued as a separate entity, with Arthur Sullivan as vice-president.

Early this year he was elected to a third term as president of the Fire Extinguisher Manufacturers Association.

Funeral services for Mr. Sullivan were held July 2 in Buffalo.

L. W. Hutchins Dies

Leroy W. Hutchins, president of Hutchins & Graves, Inc., advertising, and of Sheldon, Morse, Hutchins & Easton, Inc., public relations agency,, died June 21 after a long illness.

Mr. Hutchins was better known to the fire service as managing director of the Safety Research Institute, Inc., in which connection he advanced the principles and practices of fire prevention and protection for a number of clients. He also served as chief of the educational unit of the fire defense section, Office of Civilian Defense, Washington, D. C., for some months.

He began his career with Outing Magazine, later becoming editor, following which he was manager of the American Amateur Trapshooting Association. Before forming his own companies, he was assistant to the president of the Pontiac Varnish Company, managing director of the American Institute and director of public relations for the Swann Chemical Company.

Recent Negligence Law Suits Affecting the Fire Service

By LEO T. PARKER
Attorney-at-Law, Cincinnati, Ohio

ORDINARILY, where officials and employes of a municipal corporation perform strictly governmental functions, there is no liability for injuries to persons or property although caused by negligence of the officials or employes. The fact that operation, conduction and maintenance of a fire department is strictly governmental functions results in this rule of law being applicable here.

For example, in Barker v. City of Denver, 160 Pac. (2d) 363, reported August, 1945, a property owner sued a city to recover several thousand dollars damages for loss of his building by fire. He proved that within five minutes from the time the fire originated an alarm was telephoned to the municipal fire department. A fire company promptly responded. Notwithstanding there was a fire hydrant within about 200 feet of the scene of the fire, the fire company did not attach hose to that hydrant, but attached it to a hydrant some eleven or twelve hundred feet from the fire. The hose was not of sufficient length to reach the place of the conflagration. Due to the delay consequent, the building was destroyed by fire.

The higher court refused to hold the city liable, and stated important law, as follows:

"That the members of the fire company connected hose with a hydrant at such distance from the scene of the fire when the supply of hose which it carried was not ample in length to serve effectively, rather than with a hydrant only a short distance from the fire, and well within the length of the hose, is not understandable. . . .The doctrine of our decisions is to the effect that while officers and agents of the fire department of a municipality are in the performance of duties appertaining to such department the municipality is functioning publicly and governmentally, and liability does not attend."

This property owner, also, sued the Captain of the fire department to recover damages. The judgment was in favor of the Captain.

Also, see Campbell in Moses v. City and County, 5 Pac. (2d) 581, where a property owner proved negligence on the part of officials of a municipal fire department which resulted in destruction of a building by fire. This property owner proved that members of most any other fire department would have extinguished the fire. However, the higher court refused to hold the city liable.

Chief and City Liable

According to a late higher court decision municipal officials and also the city may be held **jointly** liable in damages for injuries caused by negligence of such officials, provided such negligence is in violation to valid state laws.

For example, in Mansfield v. City of Philadelphia, 42 Atl. (2d) 549, reported July, 1945, it was shown that Pennsylvania state law relieves and exempts municipalities from liability for injuries to persons and property caused by operation of fire department vehicles. However, this state law contains an unusual clause to the effect that such vehicles must be operated "with due regard for the safety of all persons using the highway".

In the mid-afternoon of a clear day a car of a battalion chief of the Bureau of Fire of the City of Philadelphia while passing through a street intersection came into collision with a beer truck. The truck was overturned in the intersection and the chief's automobile ran onto the sidewalk and struck a six year old boy, causing him severe injuries for which suit was instituted against both the chief and the city.

The question presented the court was: (1) Was there evidence of the operation of the fire vehicle in such a reckless manner as to warrant the injured minor to recover damages from the both the chief and the city?

During the trial several witnesses testified that just previous to the occurrence of the accident the chief was driving at a speed of 60 miles an hour. And while there was evidence that the bell was being continuously rung and the siren sounded at the time the vehicle left headquarters, yet there was positive testimony that no such warning was given until the car had reached the immediate vicinity of the intersection. In view of this testimony the jury decided that the chief had violated the state law and held both the chief and the city liable in damages.

The jury decided that operating the vehicle with a "reckless disregard for safety of others" imposed liability on both the chief and city for injuries sustained by the minor. The higher court approved the verdict, and said:

"The jury was justified in finding that the operator (chief) recklessly disregarded the safety of persons on the highway in his alleged failure, when traveling at such a high rate of speed, to give proper warning of approach and to pay adequate attention to the condition of traffic at the intersection..."

This court further explained that a fire vehicle is not ordinarily limited as to speed and is permitted to run through a red light, but that recklessness of operation cannot be denied if the driver fails to give due warning of approach of the vehicle.

On the other hand, see Carvey v. Bethlehem, 1 A (2d) 653; and Williams v. Pittsburgh, 349 Pa. 430. Both of these higher courts explained that "reckless negligence" is a "greater" degree of carelessness than "ordinary negligence" which is that degree of negligence as would be exercised by an ordinarily careless average and experienced person, under the identical circumstances.

However, "reckless negligence" can be exercised only by a person who under peculiar circumstances fails utterly to use any degree of care. Thus, the driver who operates a fire vehicle at high rate of speed without sounding a warning bell or siren is guilty of "reckless negligence," whereas a driver who sounds a bell or siren while running at high rate of speed may be "ordinarily" negligent if he fails to use some judgment in observing traffic.

For instance, in the leading case of Hall v. City of Jackson, 30. F. (2d) 935, it was disclosed that while a fire truck was going to a fire it turned a corner. The driver could not get it straightened out and it turned towards the curb and ran into an automobile injuring its occupants who sued the city for damages.

During the trial the testimony proved that the truck had been in use in the city's fire department for eleven years, looked old and dilapidated, and made an "awful racket" when it ran. When it was examined after the injury its steering gear was worn out, proving so that it was dangerous to operate it.

City Held Not Liable

Notwithstanding the facts of this case the court held the city not liable, stating the following important law:

". . . There was no evidence tending to prove that prior to the occasion in question it was disclosed that the fire truck was in such condition that the operation of it on the streets of the city involved danger to persons or property lawfully using the streets. The fact that, due to negligence of one or more employes of the department, it so failed on the occasion in question, with the result of causing injury to a person lawfully using a street, is not enough to make the city liable in damages for such injury."

Therefore, this higher court clearly stated that failure to keep fire apparatus and equipment in good repair involves ordinary negligence for which a city is not liable, unless a valid state law clearly provides otherwise.

Returning from Fire

It is important to know that the employes of a fire department are expected by the law to exercise a greater degree of care for the protection of citizens and property against injury

when returning from a fire than when going to a conflagration.

For example, in Fowler v. City of Cleveland, 126 N. E. 73, it was disclosed that a pedestrian, who was crossing an intersecting street, was struck and run over by a motor hose truck which was returning to its station.

The pedestrian was killed and his dependents brought suit contending that the city was liable for the "negligent" acts of the driver who was returning from a fire and had no good reason to be negligent. The dependents, also, introduced testimony proving that the truck was driven in a reckless and negligent manner, cutting a corner sharply at a high rate of speed, and on the wrong side of the street.

The lower court held the municipality not liable for negligence of the driver but the higher court reversed this verdict, saying:

"It would, of course, be conceded that if the truck had been owned and driven by the servant of a private corporation the liability would be fixed; and it is difficult to understand the justice of a rule which denies to a citizen the protection of the law and the remedy guaranteed by the Constitution when injury is thus done him by the servant of a city instead of the servant of a private corporation. . . ."

This court further explained the law when fire equipment is going to a fire. This court said:

". . . The municipalities of the state, are merely agents of the sovereign when they exercise governmental functions, and where employes of a fire department, while on their way to a conflagration, menacing the city, when the lives of its citizens may be imperiled by the loss of a few seconds time, do commit an act of negligence, . . . such act should not cast upon the municipality, a civil liability, unless it is expressly imposed upon the municipality by the state."

Personal Use

Modern higher courts consistently hold that when a fire department vehicle is being driven for the "personal" business or pleasure of the driver he is expected to use the same degree of care as the drivers of privately owned cars.

For instance, in Swift & Company v. Payne, 134 So. 626, it was disclosed that a member of a municipal department while driving a vehicle to his home to obtain his dinner negligently collided with a motor-truck. The municipal employe was seriously injured and he sued the owner of the truck for damages on the ground that its driver should have given him the right of way.

It is interesting to observe that the lower court held the owner of the truck *not* liable, and the higher court upheld this verdict, saying:

". . . It will be noted upon consideration of the evidence . . . paintiff (municipal employe) was not performing any official duty requiring unusual speed nor was he relieved of any duty of due care which would have rested upon a private citizen in the same situation."

Personal Liability

It is well established law that the driver and operator of a private automobile may be held personally liable for injuries negligently caused members of a municipal fire department.

For example, in Benefield v. Eagle, 262 Pac. 213, it was shown that although the siren of a fire chief's car was being sounded the driver of a motor truck drove across a street intersection in front of the fire chief. The chief's car collided with the truck and the chief was seriously injured. He sued the owner of the truck for damages.

The owner of the motor truck attempted to avoid liability on the contention that the fire chief was violating a municipal speed law ordinance when the accident occurred. However, the higher court held the driver of the truck liable, and said:

"We conclude that persons in control of fire apparatus belonging to a regularly established fire department are not, in using the streets of their city in responding to fire alarms, bound by the speed limits fixed by ordinance for ordinary traffic."

Also, see another leading case, Padgett v. McKissick, 280 Pac. 409, where the driver of a motor truck saw the approaching fire truck and failed to turn to the curb. The driver of the fire truck, instead of passing the motor truck on the left side, attempted to pass it on the right side and ran into it, seriously injuring a fireman who sued the owner of the motor truck for damages. In holding the motor truck owner liable, the court said:

"Had the driver of the defendant's motor truck stopped his vehicle at the street line . . . the fire truck would have passed without interference."

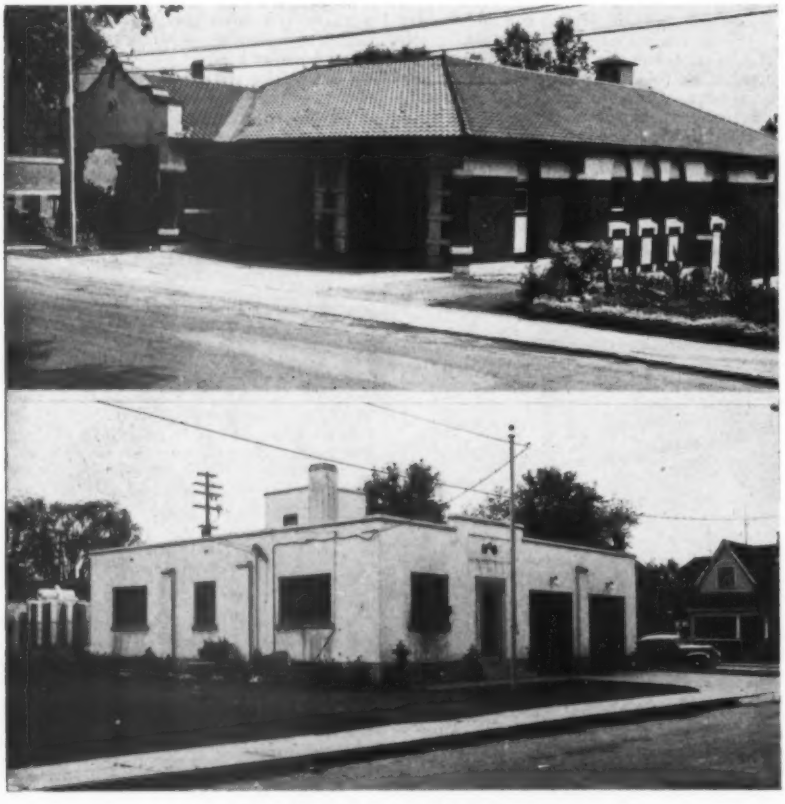
Fails to Hear

Of course, the circumstances may be such that, although the alarm of approaching fire apparatus is being sounded the driver of a private vehicle is not negligent in failing to "clear the way" where the testimony indicates that for some good reason, as a thunder storm, near-by train, poor sounding alarm, or the like, the driver of the private vehicle did not hear the alarm.

For illustration, in the leading case of Sacramento v. Hunger, 249 Pac. 223, a city sued the owner of an automobile to recover the value of a demolished municipal fire vehicle which collided with the private automobile when the driver of the latter failed to drive to the curb and stop. The city introduced testimony showing that the municipal motor vehicle was equipped with a siren which was being sounded continuously as the vehicle was being driven at the rate of 45 miles per hour.

Towever, since the owner of the automobile proved that several individuals in the vicinity of the accident did not hear the siren, the court held the city not entitled to recover a judgment, saying:

". . . Obviously, the question whether said Hunger heard the siren was one of inference to be drawn by the jury from all the testimony in the case."



Two Modern Ottawa Fire Stations

Ottawa, the capital city of the Dominion of Canada, boasts fire stations in the modern architectural mode. Above: The bungalow type house of Station No. 10 with tile roof, porte-cochere and double entrance. Below: One story modernistic type of station No. 6 in residential district. Photos courtesy of Chief C. G. Burnett.

FIRE EXTINGUISHING TESTS CONDUCTED ON LIBERTY SHIP

Experiments Carried Out by Coast Guard Under Direction of Commander Lloyd Layman

FOR the first time in the history of American Shipping, a concerted and scientific effort is being made to determine the best methods of controlling and extinguishing fires occurring in dry cargo aboard merchant ships.

The experiments, called "Operation Phobos" from the name of the former Liberty ship used as the test "guinea pig," are now under way at San Francisco, Calif.

Sponsors and operators of this forward step toward greater safety and efficiency for cargo vessels are the Army, through the Army Transportation Corps; the Navy, through its Bureaus of Ships and Personnel; the Maritime Commission; the War Shipping Administration; and the U. S. Coast Guard of the Treasury Department, through its Merchant Vessel Inspection Division.

"This project was originally conceived during the war," said Mr. William T. Butler, Coast Guard explosives expert who heads the Joint Committee. "But it has an even greater application to safety at sea in peacetime and for that reason the four services decided to complete this project.

Cargo Fires Studied

"It seeks to set up for the first time scientific procedures for combatting one of the sea's greatest menaces, dry cargo fires. Previously there existed only case histories of such fires. Now, with the cooperation of various underwriter agencies and equipment manufacturers, we are aiming at finding out all that can be learned about such fires and at setting down, after checking and rechecking, the results of our experiments so that the Maritime industry can have at hand tried and proved methods of combatting them."

Commander Lloyd Layman, USCGR, former Parkersburg, West Virginia fire chief, who headed the Fire Training School of the Coast Guard's Fort McHenry Training Base, Baltimore, Md., during the war, is in direct charge of the San Francisco operations. His staff includes Major Jack Christian, TC, AUS, wartime fire marshal at San Francisco Port of Embarkation; Lt. O. S. Peterson, USCGR, former Fresno, Calif. Fire Department executive who is in charge of the Coast Guard Fire Prevention Detail in San Francisco Harbor; Byron J. Culp, safety and fire expert from the Intelligence and Security Division, Office of the Chief of Transportation; Lt. Com. Basis E. Rice, USNR, Bureau of Ships, Washington; Alan Osbourne, Research Section, U. S. Maritime Commission; A. C. Hutton, National Bureau of Standards; and a team of experienced Coast Guard fire fighters who assisted Commander Layman in similar experiments aimed at control of fire in ship machinery spaces last fall at Fort McHenry.

While much special equipment is being used, it is chiefly for checking and testing purposes. Mr. Butler and Commander Layman are aiming, as far as possible, at simulating actual conditions aboard ships at sea when fires break out, using chiefly materials and equipment which ordinarily would be at hand on the average vessel.

The experiments are costing little in direct outlay of money. The ship chosen for the project was diverted from a trip to dead storage by War Shipping Administration after the Navy had declared it surplus to its needs. Originally built as a Liberty cargo carrier, the vessel, known in war time as the U.S.S. Phobos, was used by the Navy in the fleet supply train in the Pacific.

"We hope to turn the Phobos back to WSA at the end of the experiments virtually undamaged," Commander Layman said. "There may be some warped plates, easily replaced, but otherwise it should be in as good condition as the day it completed its last voyage."

For the combustible materials needed the committee obtained from the Navy after clearance with the Department of Agriculture, a quantity of short fibre cotton originally designed wartime mattress stuffing. It is of a quality not suitable for peacetime commercial use without costly reclamation processing.

Each service contributed manpower. San Francisco Port of Embarkation, for the Transportation Corps, arranged for stevedoring and barge services.

The Coast Guard transferred one of its largest fire boats from Southern California. Equipment manufacturers donated their instruments, extinguisher material, and their experts. The 12th Naval District provided an anchorage close to its Treasure Island Fire-fighting School which will serve as an operating headquarters. The Transportation Corps provided what funds were needed from its research allotment.

After several months work, the personnel, the ship, the cotton, and equipment were brought together in San Francisco the latter part of May and by the first week in June the experiments were under way. They will continue indefinitely, according to present plans.

The tests are divided into three main parts. First step was to determine control and extinguishment of a fire in a hold 25 per cent full of cotton. Substeps for this phase consisted of trying to put out the fire by introducing Carbon Dioxide (CO_2) from overhead piping; then from piping laid beneath the fire; by introducing live steam into the hold. The same three steps were to be followed with the hold practically 100 per cent full of combustible material. Finally similar experiments will be made of fires started in the ship paint locker.

"We chose cotton as the combustible," Commander Layman explained, "because the records show that a high percentage of dry cargo fires in the 10 years before the war occurred in cargoes which were all or partly cotton bales. And it is known that fires in such fibrous materials are the hardest to extinguish.

Through pyrometers, thermocouples, and other instruments and devices the experimenters aim at determining the time required for smoke-detecting devices to indicate presence of fire; the characteristics of the burning; the temperatures developed; the direction or air currents in the fire-filled hold; the nature of gases present; the best methods of sealing the hold; the effectiveness of the various extinguishing agents and methods; the best means of getting to the core of the blaze; the effectiveness of various respiratory devices; the effectiveness of smoke objectors; the degree of heat transmitted to and through bulkheads and docks; and the most practical complete extinguishment.

"It may prove that none of the agents of methods now known will completely extinguish cotton fires," Layman said. "Then it will be necessary to take the cotton out of the hold and break it open on the deck of a steel barge or at some land point. We'll try to determine at what degree of control the cargo can be removed and what are the best methods of handling its removal."

When all that is done, Butler, Lyman, Culp, Peterson, Christian and the other experts will follow up the data with laboratory tests, in which the Bureau of Standards and Naval Research Laboratory will co-operate, to obtain confirmatory checks of apparent results. Finally a report covering all phases of the experiments and drawing certain conclusions will be submitted to the services involved for eventual release to interested agencies. This report probably will not be ready for several months after the experiments are completed.

Representatives of shipping firms and naval architects are among those awaiting the report for its recommendations may involve some changes in the structure of merchant vessels.

Firefighters at Atom Bomb Tests

Navy fire fighters will have an important part in the atom bomb tests in July at Operation Crossroads on Bikini Atoll. They will move in to extinguish fires on target vessels in addition to furnishing fire protection to the support ships. As soon as the waters of Bikini lagoon are radiologically free, following the first blast, Navy fire fighters plan to board the targets afire and go to work. On the success of their efforts may depend some important elements of the ability of scientists to ascertain the extent of the havoc caused by atomic power. Under the over-all command of Capt. B. E. Manseau, USN, who supervised the salvage of the former French luxury liner Normandie, the Navy senior fire fighter is Comdr. John D. Burns, USNR, on military leave from the New York Fire Department where he was Pilot of the "Firefighter," often referred to as the "million dollar fireboat."

Operating under Comdr. Burns are the following principal fire officers: Lt. Carl F. Dreesen, USNR, retired Batt. Chief, FDNY, who was the first blaze beater to reach Bikini two months ago; Lt. Comdr. Wells, USNR, Portland, Ore., F. D.; Lt. Comdr. Hilton, USNR, a fire protection engineer in civilian life; Lt. Comdr. Gray, USNR, Oakland, Cal., F. D.; Lt. Comdr. Mullen, USNR, Falmouth, Mass., F. D. and Lt. Comdr. Welch, USNR, Salt Lake City F. D.

JERRY DALY.

Chlorine Gas Fells Kansas City Firemen

Chlorine gas, escaping in a burning freight shed, in Kansas City, Mo,. overcame seventeen members of the Fire Department of that city. All recovered, but the experience proved a harrowing one for officers and men who battled the blaze, one of twelve that were started by sparks from a 3-alarm fire that demolished the 5-story brick Bonniwell-Calvin Iron Company building at 1033 Hickory street.

The department's ordeal began with discovery of the fire in the old Bonneville-Calvin structure, located in the city's industrial district in the Kaw River valley, where most of its hazards are found,—the buildings being old and of second-class construction. According the FIRE ENGINEERING's correspondent, John H. Waas, the scene has accounted for most of the department's multiple alarm fires.

Occupants of a cruising police patrol car discovered the fire and transmitted an alarm at 12:45 A. M. which brought firemen in command of C. W. McGrury, assistant chief, who promptly turned in a second alarm, as flames were flaring from windows on all sides of the three upper floors. Upon arrival of Chief J. T. Lynch soon after, a third alarm was transmitted and fire-fighters began a tough battle to save adjoining structures.

Sprinkler System Inoperative

It was disclosed that last winter the building's sprinkler system had frozen and burst and was still inoperative at the time of the fire—the origin of which was undetermined. Across Hickory street a 2-story sash and door plant was ignited but water streams prevented its destruction. North of the burning structure, across a 15-foot alley radiated heat and sparks ignited a wooden house atop the 4-story building of the A. Y. McDonald Mfg. Co., but firemen promptly extinguished this blaze as well as several others started when falling walls on the iron company's plant pierced walls of the McDonald building, and broke windows on all floors. Three smaller structures adjoining the McDonald building also were threatened by heat and embers, but were saved by the fire fighters.

Thirty minutes after firemen arrived, the roof of the iron company plant collapsed, carrying down most of the interior floors, sending up a towering pillar of flame, smoke and sparks, which threatened the entire area. Chief Lynch promptly dispatched two engine companies to the exposed northern area to cope with this additional hazard.

Falling Wall Endangers Men

Falling of the east wall smashed a one-story storage shed of the Kansas City Pump Co., whose main office and building was at the site destroyed by fire last October. The south and west walls, which dropped into the street, cut power lines, endangering fire-fighters.

The iron company's fire was under control at 3:30 A. M. but the fire department had to cope for some time with the smaller fires resulting from the main blaze. The worst of these, as it affected the department occured in a one-story freight shed and loading deck of Paul's Pickup and Delivery Service at 1225 West Eight street, more than four blocks away from the original fire.

A passing truck driver discovered this fire and notified the fire department at 9:16 A. M. This alarm brought Companies 2, 25 and 16 in command of Chief Duffy.

The scene of this outbreak was only fifty feet from Fire Station 15, whose crew was still at the Bonniwell-Calvin fire.

Three companies attacked the blaze, men of No. 2, led by its Captain Herbert Hughes, approaching from the rear, while the other two advanced from Eighth street side.

As they neared the fire, these men encountered gas, drifting down wind and were doubled up, finding themselves unable to breathe. "When we got close to the flames and noticed the gas we couldn't get away from it" said Captain Sam Pascuzzi of Company 25. "We got down on our hands and knees but that didn't help much. The gas followed us with the wind as we backed away. We could breathe in but we couldn't breathe out."

Meantime the stream operated by this company had driven some of the gas out of the rear of the burning structure into the faces of the men of Company 2, who immediately began coughing and choking. They were, in turn, forced to retreat.

Police and fire chiefs' cars were used to rush all the affected men to hospitals where oxygen was administered and the victims given other treatment.

Metal Safety Valves Melted

Although the freight shed was demolished it is reported the glass container bottles were not burned. Chief Duffy expressed the belief that metal safety valves had melted, allowing the gas to escape, although streams of water had been played on the bottles to provent an explosion.

As late as 4:00 P. M. in the afternoon gas was still leaking from some of the bottles and police had roped off the street nearby and posted a sign: "Poison Gas" on the sidewalk.

NEW FIRE STATION ERECTED AT PRICHARD, ALA., WITH FWA AID

Firehouse Includes Kitchen, Lounge and Dormitory-Meeting-Room

By Harry Hewes

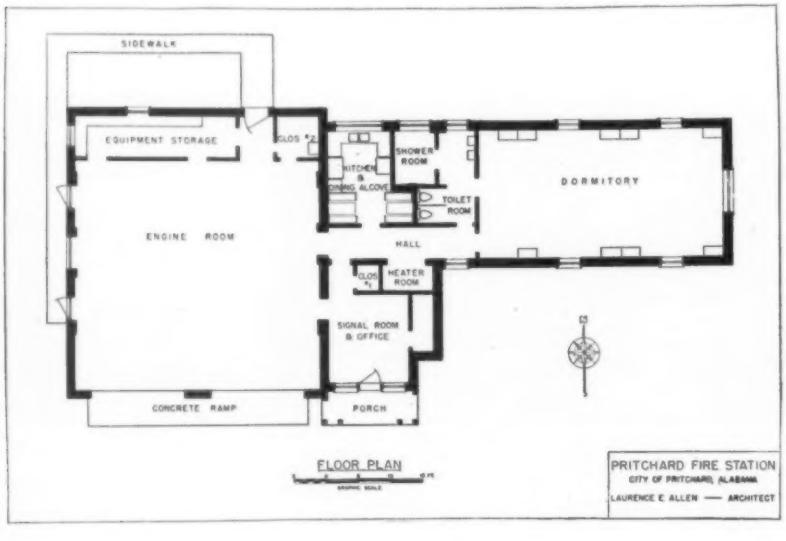
A NEW fire station has been built at Prichard, Ala., a corridor city of Mobile, as a public works project at a cost of approximately $36,200, of which $17,600 was in a Federal Works Agency grant.

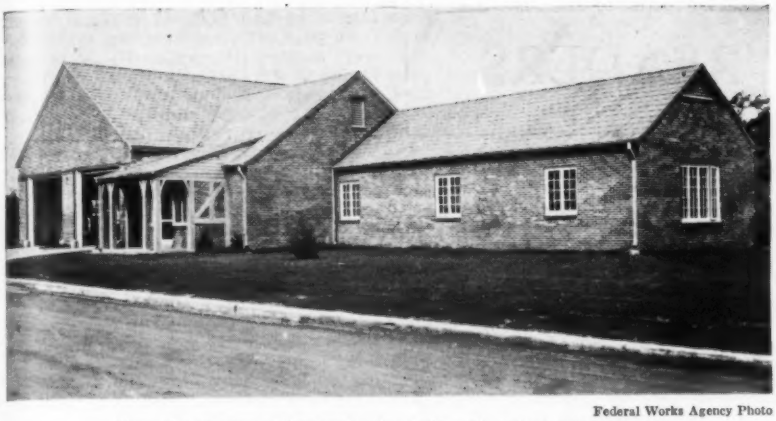
A FWA loan of $1,305 also has been made to the Prichard authorities for the preparation of plans for a fire alarm system and a "white way" in the business district.

Prichard, a community of some 6000 persons in 1940, boomed to more than 40,000 in the heavy war production program in the Mobile area, and more than 3,000 housing units were built there and in the neighboring Village of Chickasaw for the families of war workers.

The new firehouse provides space for two 500 GPM pumpers (a third pumper is on order), and dormitory accommodations for the firemen. It also has a lounge, kitchen, showers and toilet facilities, a signal room, and storage and heater space. The building is of semi-fireproof construction with masonry exterior walls, concrete slab floors laid in fill, and a steel and wood frame roof with gypsum sheeting and asbestos cement shingles. The architect was A. L. Allen of Mobile, Ala.

The Chief of the Prichard Fire Department is W. E. Dixon. He has a crew of six paid men who work on 24-hour shifts. The dormitory is also used





Federal Works Agency Photo

New Fire Station at Prichard, Ala., Built with Aid of FWA Grant

by civic and other organizations for meetings, it being available for such purposes with an understanding that the meetings will be adjourned in time to let the firemen get to bed at a reasonable hour.

The new fire station is located at Whistler Street and Fifth Avenue and the immediate area has been sodded and parked to become a little civic beauty spot where formerly ragged weeds flourished.

Prichard's Fire Department headquarters, which was moved to the new location from a crowded space under the city hall when the city began to outgrow itself with new population, also will afford protection to neighboring Chickasaw.

New Portable, Batteryless Phone

The Bureau of Mines describes a new portable, batteryless telephone which it is claimed enables surface officials directing operations after mine disasters, and rescue or fire-fighting crews working underground, to communicate with each other.

P. E. Griffith, former Bureau engineer and inventor of the new-type telephone, was recently awarded $1,000 in cash for his achievement by an Awards Committee of the Interior Department.

It is said that members of mine rescue crews cannot talk through an ordinary telephone mouthpiece while wearing oxygen-breathing apparatus, so the new telephone has a transmitter fastened to the underground crewman's throat and operated by body vibrations from spoken words or sounds produced by the larynx. The batteryless feature of the new equipment and the absence of sparks make it safe to use in mines where there is explosive gas.

Used at several mine fires and explosions by the Bureau people, the new telephone has proved superior to the old sash-cord lifeline and hand-operated signalling systems. The rubber-insulated telephone wire, wound on a revolving drum outside the mine, also serves as a lifeline for the crewmen to grasp as they move into a gassy or burning mine.

The current report also describes another portable telephone operated by batteries and employing an ordinary hand-transmitter set. This telephone has been used for years in metal mines of the Lake Superior district, where virtually no explosive-gas hazards exist. Both telephones, it is said, can be made from materials available commercially.

Although no detailed reports have been received on the use of the phone with the oxygen mask in normal fire-fighting operations, it is said that the device is applicable for such fire service work.

Data on the new phone may be had by writing the Bureau of Mines, Department of the Interior, Washington 25, D. C., asking for a copy of Report of Investigations 2875, "Mine Rescue Life-Line Telephone Assemblies."

Virginia Kills Fireworks Bill

The Virginia House general laws committee, in February, killed by a vote of 9 to 5 the Cooke bill to make permanent the expiring wartime emergency law against the sale or use of fireworks.

The bill, which had been advocated by Richmond, Va., fire and public safety officials, as well as Lynchburg officials and representatives of the Virginia Safety Congress, was opposed by several delegates from rural areas who asserted that fireworks meant much to rural children who did not have the recreation facilities of urban youth.

How to Destroy TNT-Soaked Buildings

Recommendations outlining the work to be done to complete the decontamination of certain buildings and part of the grounds of the Gulf Ordnance Plant, Prairie, Miss., were announced on June 10 by the War Assets Administratoin.

The recommendations were made by a War Department board set up to authorize and recommend the destruction of buildings and improvements because of contamination by explosives. The board includes representatives of the War Department, WAA, and two explosives manufacturing firms.

The board found that three buildings in each of the two powder loading lines operated at the plant were so discolored and contaminated with TNT, trinitrotoluol, that the buildings could not be used in place or dismantled and reconstructed because of the fire, explosion, and health hazards involved. The board recommended that the combustible material in the buildings be removed and burned. The floor boards of special safety ramps leading from the buildings will also be removed and burned. The six buildings to be destroyed represent less than two per cent of about 330 structures at the plant.

The board also recommended that several sumps or open outdoor pits and the underground industrial sewer lines, which carried off explosive wastes, be demolished, refilled and any explosive debris burned in open fire.

WAA officials pointed out that lumber and other combustible materials which have been saturated with TNT are highly inflammable. Furthermore, TNT, when confined in porous wood and brought to high temperatures, will explode. The chemicals contained in the explosive also are highly toxic to the skin, causing various kinds of dermatitis.

The contaminated buildings in the loading lines were used for the melting and pouring of TNT. The explosive has a low melting point and can be made to flow like molasses when treated with super-heated steam, a part of the technique used in the shell loading process.

Federal Works Agency Photo

Apparatus Room of Prichard, Ala., Fire Station

WITH OUR READERS

News from Tokyo

To the Editor:

Writing from Tokyo. Have been travelling a good deal—you know how us country boys get around. Now leaving on another trip—a day's travel west. Yesterday Carlie Howe and I were out

Fire Alarm Box Standing Amid the Ruins of Bomb-Wrecked Tokyo

at Hachioji, at the only plant in Japan making fire equipment that was not bombed out. But the rest of Hachioji sure caught Hell. The Air Force made a mess of it. They didn't exactly skip Tokyo or Yokohama either. Miles and miles of desolation resulting from Air Force incendiaries and bombs. They did a fine pin-point job here. They left what we needed for the occupation and belted Hell out of the rest of the city.

For a real job, you ought to see Hiroshima. I expect to be there again before long. Nothing like it. Except for the walls of some reinforced concrete buildings there isn't even rubble left in the main part of what was Hiroshima. Kure, the big Jap naval base close to Hiroshima, was given thorough Air Force treatment. Lot of Jap ships laying around in the water—and under it. Was down in Kanoya, the Nip air base. Another place where our pilots did a thorough job—every Jap installation smacked out and strafed. Nip planes all over the area. I had quite a time in nearby town. Flew over the Kuchino volcano on island south of Kyushu. We didn't try to knock the fire out. Was also on Okinawa and many points in Luzon, P. I. Was on some jobs with Fire Chief Cruz and the Army Fire Department in Manila. Chief Cruz told me that George Richardson had been on a visit to Manila.

Enclosing a page from a Jap apparatus catalog. It shows the Japanese standard fire hose coupling. I like it mighty well.

I like the coupling, but not the single jacket Jap hose. They should use U. S. double jacket hose and expander rings. The coupling is called the "Machino" or ma-SHEEN-o, and is made at the plant that we visited at Hochiaji.

The coupling is patented in the U. S., and the patent number is 1587079. It is the best instantaneous job I've seen.

Later on, would like to get a snapshot or two of some of our larger fireboats in New York City so I can show them to Fire Chief Kanada of Tokyo. Charlie Howe and I looked through the "Fire Chief's Handbook", which I have here to see if there were any pictures of the "Harvey" or "Fire-Fighter" to contrast with the small craft they have here.

Generally speaking, all the Jap apparatus is undersized. Most of their equipment is obsolete by our standards. Their biggest pumpers are only of 500 GPM capacity. They have only three aerials here, one built in 1924 on a German chassis. Stations and uniforms are sloppy. Guess one can expect a personnel situation like they have here when one recalls the heavy losses in fire department personnel during our raids in Tokyo and Yokohama.

Soon as I get a new address (will be with the 6th Army) will send for FIRE ENGINEERING. Been mentioning it all along the line. The boys in Manila know all about it. Found some keen men among Chief Cruz's officers there. Also among some of the Army fire officers.

Sure need more aluminum equipment. Brought a locker full of my stuff, and yesterday I bought some Machino adapters and aluminum couplings. Had a nice introduction to Tokyo some weeks ago—a gasoline dump caught fire 100 yards from the orderly room that I was reporting to for duty. Knocked it out with fog. The Japs have no fog nozzles as far as I can find out.

Sincerely yours,
TEX BRADFORD.

On Dressing Up the Fire Service

To the Editor:

Today, on my way to perform my tour of duty at the firehouse, I noticed many of our Army and Navy personnel all bedecked with ribbons spread across their chests; they were a riot of color and the ribbons dressed up the uniforms very much.

This aroused my curiosity and the first chance I had to engage one of the members of the Army and Navy, I did so and much to my surprise I found out that there were a number of decorations that most of the men wore, which were easily obtained; for example: if a man had a good conduct record for a year he was awarded a ribbon; also if he had been on a Naval vessel for a year in South American waters he wore another ribbon; likewise, if he was in the North Atlantic waters he wore still another ribbon. All of these ribbons could be worn without the man ever being in actual combat.

Right here in the Fire Department we have a number of firemen who have performed some very heroic deeds and have been awarded medals and insignia which they never wear. As you know, too, the uniform needs more dressing up; it is too plain. If these insignia were worn, it would add color to the uniform and, in addition, it would create some interest in the public mind; people would wonder, and they would ask questions about the insignia or ribbons, which in turn would put the department in a new light, and would remind the people that the fire department also performs many heroic acts, in fact, some of them more heroic than those performed on the battlefield.

On the field of battle it is a case of kill or be killed, but not so with some of the rescues that have been made in our department. Most rescues are performed alone, with few or none to witness the fireman's efforts.

He could also have a ribbon for good conduct. For years of service in the department, a man could wear a stripe or stripes on his sleeve the same as is done in some police departments.

I think if some article on this subject were run in FIRE ENGINEERING it would stir up a great deal of interest . . . and might lead to medal men wearing their decorations.

The column I enjoy most in FIRE ENGINEERING is "Questions and Answers." The only fault that I can find is that it is never long enough.

A MEDAL WINNER.

Divided Authority

To the Editor:

I have been reading with much interest your editorial "Divided Authority" in your January issue, and I would like to bring to your attention the authority of all fire chiefs and fire department officers which they exercise in the province of Ontario under the provisions of the Fire Marshals Act. This authority in this province is apparently much broader than sometimes exists in some states in the United States, for instance it covers the inspection of all private dwellings and not just what might be termed public premises, and further this authority is not advisory but has the full power of the law, with most substantial penalties behind its enforcement.

In the first place, under the provisions of Section 9 of the Fire Marshals Act the chief of every municipal fire department, immediately on his appointment or on the establishment of the fire department, becomes "an Assistant to the Fire Marshal" and authorized to utilize the fire inspection provisions of this Act. Further, every member of a municipal fire prevention bureau or every member of the fire department who is designated by the fire chief as a fire prevention officer automatically receives the same appointment and authority. These provisions say that entirely at the option of the municipality how many fire prevention officers may be appointed and who they are to be, for it is a general principle of law in this province that each municipality has power to enact its own building by-laws and to de-

cide the general principles of building construction and building safety within the municipality.

Then under subsection 1 of Section 20 of the Fire Marshals Act, every such fire chief or fire prevention officer "may, upon complaint of any person interested, or where he deems it necessary to do so, without such complaint, inspect all buildings and premises within his (territorial) jurisdiction" which you will note is an all-embracing power to inspect. Such inspections may be "at all reasonable hours" when the officer is entitled to "enter into and upon such buildings and premises for the purpose of examination" and if the owner or occupant makes any objection the officer "may call for the assistance of" taking with him if necessary a peace (police) officer or such other assistance as he may deem proper".

This section does not allow the officer to use force to enter a premises or break down a door, but any owner or occupant who refuses to permit the inspection can be brought to court and fined up to $20, the payment of this fine "shall not relieve any person convicted from fulfilling any obligation for the neglect of which the penalty was imposed". In other words the occupants can be brought to court and fined $20 and costs each time he refuses to permit an inspection which could be tried every day.

Next the powers of the fire chief or fire prevention officer to order remedial measures come under subsections (2) and (2a) of Section 20 of the Fire Marshals Act, which are as follows:

Orders on Inspection

"(2) If, upon such inspection, it is found that a building or other structure is for want of proper repair or by reason or age and dilapidated condition or any other cause especially liable to fire, or is so situated as to endanger other buildings or property, or so occupied that fire would endanger persons or property therein, or that exits from the building or buildings are inadequate or improperly used, or that there are in or upon the buildings or premises combustible or explosive materials or conditions dangerous to the safety of such buildings or premises or to adjoining property, the officer making such inspection may order,—

(*a*) the removal of such buildings or the making of such structural repairs or alterations therein;

(*b*) the removal of such combustible or explosive material, or the removal of anything that may constitute a fire menace;

(*c*) the installation of safeguards by way of fire extinguishers, fire alarms and other devices and equipment and also such fire escapes and exit doors as may be deemed necessary to afford ample exit facilities in the event of fire or an alarm of fire. 1937, c. 329, s. 20 (2).

Removal of Process from Buildings

"(2a) The Fire Marshal, Deputy Fire Marshal, a district deputy fire marshal, an inspector or an assistant to the Fire Marshal may order the removal from any building not being of fire resistive construction or being within fifty feet of any hospital, school, church, theatre or any other place of public assembly or any hotel, apartment house or multiple occupancy dwelling, of any process of manufacture or other occupancy which because of the danger of fire or explosion is especially hazardous to life or property or may order that any such premises shall not be used for any such process or occupancy. 1944, c. 21, s. 2 (2)."

All Orders issued under the above quoted provisions are subject in all cases to appeal to the provincial fire marshal as to the reasonableness of the Order. If the Order calls for the removal of a building or the making of structural repairs or alterations in it or the removal of any particular occupancy of the building, there may be a further appeal from the decision of the fire marshal to the local county judge. If there is no appeal or if the appeal has been dismissed, the owner or the occupant of the building at the expiry of the time limit made for completion of the work, may be prosecuted in the magistrate's court where the reasonableness of the Order is not in question but only the bare fact of whether or not the owner or occupant had complied with the Order. In such a prosecution the penalties may be fine up to a maximum of $100 a day for each day in which the owner or occupant has been in default, or else imprisonment in jail, or both fine and imprisonment. We have had jail sentences of as high as 3 months and a number of quite substantial fines.

If the Order is for the removal of any combustible or explosive material in the building or the removal of any particular condition that constitutes a fire menace or if the Order is for the installation of such things as fire extinguishers, standpipes, automatic fire detection systems or for the provision of fire escapes, exit doors, panic bolts, etc. there is no appeal as to the reasonableness of the Order beyond the provincial fire marshal, and the penalty for default, a similar principle to the above, is a maximum of $10 a day for each day there is default beyond the time limit fixed in the Order, with imprisonment as an alternative or with both fine and imprisonment.

In all cases the court prosecution may be initiated by the local fire chief without any provincial approval or consultation. The fire chief gets the advice and assistance of the city or town solicitor or the local crown (6) attorney.

You may be wondering where the function of the provincial fire marshal comes within the above picture, but briefly this may be summarized by saying that the Fire Marshal's Office acts as the technical adviser to the local fire chief in matters which are beyond his technical competence or where he runs into some special difficulty such as a building owned by the mayor's uncle. The Fire Marshal's Office, whose officials include one graduate engineer, three men with over 20 years municipal and provincial fire prevention experience and one with over 10 years—who acts only on a special request and it does not interfere with the discretion of the local fire chief except in those rare circumstances where it is clear that he is wrong or has failed to take action. As assistance to the fire chiefs in their work the Fire Marshal's Office issues an Authority Card to all fire chiefs and any of their officers they designate for fire prevention work, and also I have two graduate lawyers on my staff who are available to assist in local court prosecutions where necessary.

There are several advantges of having a wide discretionary law on a Provincial basis and one which is more flexible than a detailed code. First, the local fire chief is the only person who can give the necessary local supervision on matters of safety which is much superior to having at the most one or two visits by a provincial inspector. Secondly, the Fire Chief can have his order enforced without having to wait for action by his municipal council which may not be always prompt. Thirdly, once the Fire Chief has issued an order he cannot change or amend it and is therefore not subject to local pressure as the only person who can amend or change the order is a Provincial officer.

From the above, I trust you will agree with me that in the responsibility for fire safety which by public opinion is placed on every municipal fire department, the fire chiefs and their officers in this province have authority to establish and enforce any safety measures. This is the law not only in Ontario but very similar provisions are contained in corresponding statutes in the other provinces across Canada.

Feeling that the above might be of interest to you and your readers, I am

Your sincerely,
W. J. Scott, Fire Marshal,
Province of Ontario, Canada.

Extinguishing Sodium Fires

To the editor:

In the March, 1946 issue of "Fire Engineering", in the Questions and Answers column, the question was asked "What agent can be used to extinguish a fire in burning metallic sodium?"

To immerse burning sodium in kerosene is not practical, because if the sodium has been burning for any length of time, it is molten and cannot readily be handled. In our opinion, the best way to extinguish burning sodium is to cover the burning surface with dry, light soda ash and thus smother the fire by excluding the air. Soda ash, after many years of use, has proved to be superior to all other materials used on burning sodium, including dry sand, dry salt, and also other special dry powders.

Kerosene is sometimes used to cover solid sodium in bottles and other containers, to keep the metal out of contact with moist air. However, kerosene normally should not be used on burning sodium as a fire extinguishing agent. Neither carbon tetrachloride nor carbon dioxide is effective on sodium fires and should not be used.

We completely agree with you that water should be kept away from sodium, or violent explosions of hydrogen-air mixtures will result.

C. W. MacRitchie
Niagara Falls, N. Y.

Depleted Departments

To the Editor:

I have read with deep interest the editorials "Fire Department Undermanned" and "Divided Authority" (January, 1946, issue) and anyone interested in the activities of the fire department and in fire prevention know full well the facts outlined in these two articles.

Our city had a very heavy fire loss when one of our oldest furniture factories was leveled in less than two hours

(loss estimated over one-half million) and many cabinet and other furniture workers in their late 60's and 70's will be unable to secure employment in other industries at this time.

Fires may strike at any time, and without regard for weather, and in this case it was about 11:20 A.M.—the temperature about 10 above and a stiff wind blowing from the west. The fire started in or near one of the brick dry kilns. As is the case in old factories, some old frame sheds of no value remain on the premises and the summer accumulation of high dry weeds remain, all tinder for any fire. Here is where the need of proper fire inspection comes in and, above all, enforcement of the inspectors' findings.

There was a fire alarm box at the corner, and no fire house was over ten to twenty blocks from the scene. The box was pulled at once (upon discovery of the fire) and the response by the department was prompt. However, when the apparatus arrived, there are only three men on the pumper, and anyone familiar with the operations of hooking up a pumper, laying a line and having a heavy stream at the nozzle knows that the job cannot under any condition be handled by three men in record fire department time. It is a physical impossibility, no matter how efficient the three men or how coordinated their efforts.

Since this disastrous fire I have witnessed pumpers again and again making a run with two men on the driver's seat and one man on the rear, and at times three men on the ladder truck.

The writer served on our city council in 1935 to 1938, during the depression years, when city finances were rather low and economy was needed. However, I did at all times insist that in making the budget that manpower requirements be met and especially in the industrial and high value areas and that there be five men on a pumper at all times. During the war the manpower shortage made it impossible to maintain the five-man-setup, but now, with so many fine young men thoroughly trained in fire-fighting, available for the fire service, every consideration should be given the importance of fully manning the fire department. At the same time sufficient thought should be given to the purchase of new equipment to meet present-day needs and not expect apparatus purchased in 1915, 1916 and 1919 to give the maximum of service both in responding to alarms and in pumping operations.

There should be a more direct contact between the fire department and the industrial leaders, who above all require the services of the department to protect their plants which, because they may be engaged in new manufacturing methods or working on new materials, may have special fire protection problems.

A well-planned purchase of fire apparatus should be given ample study and a given number of pieces should be bought each year. In this manner all the equipment would not become antiquated at one time. Also, as fire hazards may change, a flexible program would permit the addition of whatever type of apparatus is best needed to meet current conditions.

In addition, men appointed to the Board of Safety, or whatever body may handle the department, should be men interested in the welfare of the department and have some direct knowledge of its needs. They should give the fire chief the fullest cooperation in seeing that full manpower is maintained at all times and make sure the fire-fighting apparatus is of ample size, in number and pumping capacity to the needs of the community.

The fire chief, in turn, should be a man thoroughly trained in all the ramifications of the department and he should be fearless in holding his ground to see that his department gets the things it needs now, and not after losses have occurred, due to lack of manpower, and proper equipment.

Every city has a sufficient number of outstanding citizens who would give fullest support to the fire chief's requests and make certain his needs were fulfilled. A good many fire departments need a good public relations officer to help them "sell the idea".

Again I wish to express my appreciation of the fine job you are doing and it is to be regreeted that more folks do not see these fine editorials. The average citizen would be highly impressed by the seriousness of the problems discussed.

A FORMER FIRE COMMISSIONER

Novel Use for O. C. D. Pump

To the Editor:

In connection with civilian defense work, Longmont, Colo., was issued a 500-gallon skid mount pump; later the city purchased this equipment at the catalogue price.

It was mounted on the city sprinkler with connections left available for fire hose streams. We have run tests on this rig and found that it does both jobs pretty well. The truck pictured has a 1000 gallon tank.

It is my thought that somewhere someone might be able to use this same idea to put some of this equipment where it will do some good.

Very respectfully,

J. W. GREENO
Chief, Longmont, Colo., Fire Department

Sprinkler Truck Equipped with O.C.D. Pump

Streams for Large Fires

To the Editor:

After studying the National Board of Fire Underwriter's Bulletin No. 220, entitled "Restriction of Areas of Buildings, dated August 1, 1945, I would like to air part of my own reflections on the subject, some conclusions gained from my limited experience as a fire-fighter and an idea or two for overcoming the condition discussed.

In paragraph 5 the Underwriter's Bulletin points out:

1. The necessity for applying water directly on the incandescant mass.
2. The limited reach of streams.
3. The great difficulty for firemen to approach the heart of a fire against terrific heat.

Paragraph 2 reads: "There can be no panacea for large and excess areas. The nearest approach is to provide some means of getting water onto a fire irrespective of its location. . . ."

I worked at the last big Coney Island fire—I think it was August 12, 1944, at Luna Park. Never before was I so impressed with certain facts about fires in large areas. I made the same conclusions that are made in the Bulletin, and which I repeat above, and they have stuck with me.

My wording was different. I used to say that we don't put out big fires—they burn themselves out. With few exceptions, the best we can do is to prevent spread, by surrounding the fire and protecting exposures; then as the burning fuel becomes less and less and the heat diminishes, we can close in to a point where our streams can reach whatever is left of the fire. Of course those conditions aren't new or original. They have been gleaned by those interested through generations of fire fighting and the careful study of a great many large and wateful fires and conflagrations.

While working at the Luna Park fire, I was impressed with the pitiful inadequacy of my company's hand line, stretched from a high pressure hydrant; and the futile attempts to advance it against terrific heat. We were on the fire's flank where the heat wasn't as great as it was on the lee side, nevertheless we could barely get closer than about 100 feet to the fire. Our stream had a reach of about 60 to 75 feet; the result was that we barely got water on the outer fringe of the fire; nor did our deck pipe on our hose wagon fare much better.

The men operating the deck pipe could get no closer than about 75 feet because of the great heat, in spite of the fact that they were well covered with clothing. I remarked to the men at the time that if we had a wood or

(*Continued on page* 576)

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

For Butter or for Worse!

We like the caption—and the yarn, sent us by Clipper Johnson of Washington, D. C. It has to do with Fire Lieutenant Thomas Barron, of Brockton, Mass., who has come to realize that butter should be kept in a cool place and not taken to fires!

Brother Barron left a pound of butter (deponent saith not how or where he got it) on the running board of the fire engine while he was putting on his coat. The gong hit. Other firemen manned the truck, and it—and they—and the butter, roared off to a fire.

When the truck returned to quarters the running board was bare as Old Mother Hubbard's cupboard!

That rumbling noise you hear is Lieut. Barron effervescing!

* * *

Combined Tests

Identical intelligence and aptitude tests for police and fire department applicants are now used in Pasadena, Cal., according to the International City Managers' Assn. The new standard tests were adopted in an effort to consolidate selections of personnel for police and fire departments after it was found that many applicants were willing to accept positions in either department.

* * *

1,000 Get Enforced Holiday

More than 1,000 persons were evacuated in June from the 21-story Harris Trust and Savings building and the Downtown Parking Station, Inc., 123 W. Monroe St., Chicago, Ill., when 685 gallons of gasoline from a 1,000 gallon tank in the basement of the latter building leaked out and created a fire and explosion hazard.

Loop firemen blocked off the sidewalk in front of the building, and forbade all smoking. They donned rubber soled shoes (those that didn't wear their boots) to avoid sparks, and formed a sand bucket brigade to dump sand in the pools of gasoline, while other firemen poured thousands of gallons of water into sewers to flush away accumulations of explosive gas.

Late in the afternoon Chief Fire Marshal Mullaney announced the danger of an explosion had been averted.

* * *

Bomb Test Brings Firemen—Pronto!

Chicago firemen in downtown districts, whose nightly slumbers—when they get 'em—are still filled with nightmares of the Hotel LaSalle tragedy, has visions of still more trouble less than a week following the hotel fire, when an alarm came from the Hotel Sherman.

Seems that Ernest Bygield, president of the hotel, J. A. Jones, and four employes, one of them carrying a new glass "bomb" type extinguisher went to an elevator service closet on the sixth floor of the big hotel, to do some "experimenting."

They were going to "test" the extinguisher. One of them placed some newspapers in a steel drum in the closet and ignited them. In a moment, another tossed in the glass "bomb"' which was supposed to break, when heated, and release chemicals to put out the fire.

Well, before you could say "pyrotechnic," fire sirens were screaming in the street and in seconds more, firemen were swarming to the sixth floor. Somebody, seeing the smoke pouring out the window of the hotel had called the fire department (nobody in Chicago takes chances on "delayed alarms," these days).

The test? Oh yes, the hotel employes put out the fire with their regular fire fighting equipment. Mr. Jones admitted that the experiment was not much of a success, but added **"those firemen sure got here in a flash*"**

(Thanks to many contrib's)

* * *

"Yell to Pay on Fire Escape"

That's the heading the press account gave the story about the excited rumor in the 14-story Kansas City Club.

Dense black smoke enveloped the big building. There was obviously and to all intents and purposes, a fire. A man, baggage in hand, crawled out of a 13th-floor window and began a mad scramble down the fire escape as 400 or 500 spectators on the ground below yelled at him.

The more they yelled the faster he came, until he reached the second floor level where their shouts must have become intelligible. For there he stopped, gazed desparingly at the steps rising endlessly above him,—and began his return trip aloft.

The sidewalk superintendents had been trying to tell him the source of the fire —burning tar paper protecting a freshly-laid sidewalk!

* * *

Cheats Housing Shortage—Rents Firehouse!

Leave it to Tim Stillman, son of Dr. Ernest G. Stillman, honorary medical officer, New York Fire Department, to circumvent the housing shortage, says Jerry Daly in *The Chief*.

Tim, buff extraordinary-of-all-buffs, just out of the Army, is returning to resume his studies at M.I.T. With him is his bride whom he married in Denver.

Tim's housing problem was especially severe—he not only wanted living quarters but he wanted them not too distant from the sound of the fire siren. But the resourceful Timothy, balked at first by the seeming utter lack of housing, hit upon the answer. He prevailed upon the powers-that-be in Boston, to rent him the vacant fire station of Eng. 10 of the Boston Fire Department; located in the Back Bay Colony.

Young buff-benedict Stillman left New York with his bride to take residence in his new "quarters" in a brand-new jeep (not army surplus, either) which he has had painted in fire-department red and which, ultimately, we hear, will be fitted out with all appropriate fire-fighting appurtenances.

We understand Tim plans to garage the jeep in his station house home and also, to install a machine shop in the rear of the apparatus floor. Doubtless the room will retain the sliding-pole as a speedy means of exit when he gets a tip-off of a "worker."

* * *

Freak Storm Hits New England

Early in June a freak hail and lightning storm struck New England doing particularly heavy damage in the Boston, Worcester, Brockton and Lowell areas. Many people were killed by lightning and falling trees.

Lightning damage was called the worst in 60 years, setting several fires. More than 28,000 telephones were put out of commission according to the New England Telephone Company—almost 10,000 of them in the Boston area. The Boston Edison Company reported the storm damage was exceeded only by that of the hurricanes of 1938 and 1944. More than 60 of the company's circuits were interrupted. Many fire alarm circuits were put out of business.

The most serious break came in Newton, Mass., where the fire department ordered all current shut off because of fallen wires.

* * *

Firemen "Balled Up"?

Firemen of two Newington, Conn., companies had their patience stretched and strained on a January Saturday, and all because of a rubber ball and a small boy.

The companies responded to an alarm for a fire in the home of a Mrs. Albert Brule, whose husband, a corporal in the armed forces, was en route to the States. She told the firemen that she was sure something was burning, but she just couldn't find the fire. After a long hunt, the Brothers agreed with her that something was burning and definitely with rubber in it. And so the search was pressed all through the house—but without avail until Mrs. Brule remarked that perhaps the lights had something to do with it because when they were off the odor became less pronounced.

Tracking down this lead the searchers found the trouble in a light reflector near the ceiling in one room. No, it wasn't a "short"—it was just a plain scorched rubber ball, which four-year-old Bobby Brule had bounced into the bowl—and about which he kept mum. (Thanks Horace Clark)

* * *

Passengers Get Steam Up—Quickly

In Philadelphia, Pa., driver Elwood Kromer stopped his bus and announced in bus-que language that his passengers would have to transfer to a following vehicle.

Complaints were loud and vociferous, until Kramer explained:

"Well, I didn't want to scare you, but the bus is on fire."

The twenty riders exited in nothing at all flat. Six fire companies extinguished the blaze.

* * *

Hot Off the Tape

New Mex. State Police are searching for a two-way firebug who recently set fire to a barn near Santa Fe, then scattered red pepper in his tracks, apparently to prevent use of bloodhounds in tracking him. . . . The historic Henry Clay Inn, Ashland, Va., was destroyed by fire, thirty occupants escaping via ladders. It was the third inn of that title on the same site to burn. . . . Two employees of Todd Shipyard, Hoboken, N. J., were killed when fumes in hold of Norwegian tanker exploded setting fire to their clothing. One worker was burned trying to beat out the fire. . . . There appears to be a considerable increase in the number of cooking gas suicides—with resultant boom in blasts and fires in single and multiple dwellings. . . . The Uniformed Firemen's

(*Continued on page* 568)

News of the Manufacturers

Ahrens-Fox Again Exhibits

Among the oldest exhibitors to have an exhibit at the 73d Convention of the International Association of Fire Chiefs, Cleveland, Ohio, July 23-26, is The Ahrens-Fox Fire Engine Corp., Cincinnati, Ohio. The present Ahrens-Fox company dates from 1905—an early year in the history of power-driven fire-fighting apparatus. But through predecessor companies, and in the persons of its founders, Ahrens-Fox is almost as old as the I. A. F. C. itself. During the years of World War II, the facilities of the company were devoted to defense work.

Officers of the present Ahrens-Fox corporation are Harold R. LeBlond, President; Richard N. Smith, Vice-President; Edward G. Schultz, Treasurer, and Frank Stenger, Secretary.

Ahrens-Fox representatives will attend this year's convention at Cleveland to explain the details of construction of Ahrens-Fox equipment.

Walter Kidde and Co. Sues

Walter Kidde and Company, Inc., filed suit in New York Supreme Court recently for an injunction and damages against General Refrigerators Corporation of New York for misrepresentation in connection with the sale of surplus carbon-dioxide-raft-inflation equipment made by Kidde for the U. S. Government.

The complaint charges that General Refrigerators Corporation purchased these surplus devices and is offering them for resale to the public as fire extinguishers. Kidde alleges that since this equipment was not designed for use as a fire extinguisher, it will not operate efficiently as a fire extinguisher and that such misrepresentation constitutes a serious injury to the Kidde Company and is potentially dangerous to the public.

Oren Announces New Distributors

Francis S. Brigham, heading up the Sales and Engineering Departments of the Oren Fire Apparatus Company of Roanoke, Va., announces the following recently appointed distributors for Oren Custom Built Fire Apparatus and Rescue Trucks:

States of Tennessee, Arkansas, and Mississippi — Bedford F. Murray, 3793 Kearney Avenue, Memphis 11, Tenn.

State of West Virginia—Hamilton Stone, P. O. Box 444, Lewisburg, W. Va.

State of Virginia (less West Tip)—James W. Minter, 515 Beaumont Avenue. Baltimore, Md.

State of Michigan—Howard M. Carter. Whitehall, Mich.

State of Illinois—Raymond P. Huffman, San Jose, Ill.

State of Ohio, Western Pennsylvania, Eastern Kentucky and West Virginia Panhandle — Safety First Supply Company, 530 Fernando Street, Pittsburgh, Pa.; 5002 Euclid Avenue, Cleveland, Ohio; and P. O. Box 1007, Charleston, W. Va.

Mr. Brigham returned to Oren last Fall following 4½ years service with the 29th Infantry Division, serving three years in the European Theatre of Operations and participating in the "D-Day" Invasion of France and subsequent campaigns.

New M. S. A. Mask Bulletin

A new four-page bulletin describing and illustrating the Mine Safety Appliance Company's Industrial Gas Masks for protection against industrial gases or combinations of gases, smokes, vapors, and dusts, has been issued by Mine Safety Appliance Company, Braddock, Thomas and Meade streets, Pittsburgh, Pa.

The bulletin features the M.S.A. "All-Vision Facepiece" which permits unobstructed vision covering all normal viewing angles and provides gas-tight fit on any face without "pressure-points." This face-piece is available equipped with a speaking diaphragm, which is said to insure easy and accurate communication between men, over the telephone, and through speaking tubes.

Copies of the new bulletin may be had by addressing the company.

Traffic Batons

The Signal Service Corp., Elizabeth 3, N. J., manufacturers of signaling devices and equipment, has recently issued a new bulletin on its Traffic Baton, which is similar to that used by the Army during the war. It also has a wide field of application for the fire service, particularly fire patrol and emergency companies.

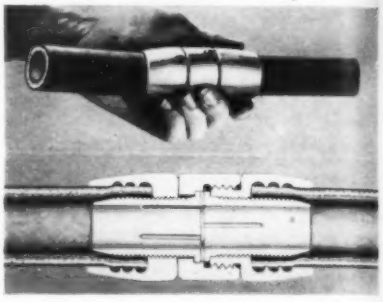
This bulletin, together with a brochure describing AGA (American Gas Association) signaling products may be had by writing the company.

Memphis Gets New Triple Combination Pumper.

This Pirsch triple combination pumping engine was recently delivered to the City of Memphis, Tenn. The truck is equipped with a multi-stage series parallel 1,250 gallon pump, four-door cab, aluminum alloy extension and roof ladders and other conventional equipment.

New High Pressure Coupling

Perfection of a streamlined hose coupling of light weight, has been announced by the Bar-Way Manufacturinc Co., of Stamford, Conn.



New Bar-Way Streamlined Coupling

It was designed primarily for fire fighting, spraying and diving equipment. It is designed for working pressures 1,000 pounds per square inch or more.

In the most popular size, ½-inch, it is but 3¼ inches long with an overall diameter of 1⅜ inches.

The full diameter of the hose is maintained throughout the connection with no reduced flow or shrinkage of the hose itself.

Report on German Extinguishers

Fire extinguishers of the dry powder type comprised about twenty percent of Germany's fire extinguisher production in peacetime, according to a report released on May 7 by the Office of the Publication Board, Department of Commerce.

This report on German chemical fire extinguishers was made by Carlisle F. Smith for the Joint Intelligence Objectives Agency.

The powder used in the extinguishers consisted of sodium bicarbonate (73.25 percent), borax (25 percent), kieselguhr (1.1 percent), soap flakes (0.65 percent), and traces of paraffin. Methods for making the powder and a cross section drawing of the extinguisher are included in the report.

The investigator believes two other German developments merit attention: a hermetically sealed acid bottle for soda and acid type extinguishers to prevent moisture obstruction; and use of a glass inner tube instead of solder-coated copper in chemical foam extinguishers.

The investigator concludes that, in general, German fire extinguishers were no better than U. S. products, and in some cases were inferior. Cross section drawings of the main German types are included in the report.

Copies of the report may be secured from the Office of the Publication Board, Department of Commerce, Washington 25, D. C. at $1.50 each.

N. Y. Chiefs' Rise Voided

The promotion of ten battalion chiefs in the New York City Fire Department to be deputy chiefs was an invalid act, the Court of Appeals held in a decision, in June, which affirmed the findings of the Supreme Court's Appellate Division, First Department.

For Practical Discussion of Current Fire Department and Fire Management Problems

USE OF 1½-INCH HOSE

DURING the past twenty years, 1½-inch hose has come into its own in the American fire service. Comparatively few departments employed it before that time; today, a majority use it, at least for special types of fires. And the efficiency of fire extinguishing operations has increased in proportion to the increased use of the 1½-inch hose.

This Round Table discussion gives a fairly complete cross-section of present-day fire department practices insofar as the use of the smaller hose is concerned. Both large and small communities have participated in the discussion, and the benefits reported thus are fully representative of the entire field.

Readers are invited to send in their comments on this subject, which will be continued in the August issue. Address communications to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Topic

F. A. Murray, Chief, Teaneck, N. J.: We never stretch 1½-inch hose direct from engine or hydrant. We stretch 2½-inch hose to the front of the building and then connect a water thief and from the thief to the fire we can stretch one, two, three or four lines of 1½-inch hose. We also can stretch a 2½-inch line and two 1¼-inch.

One and a half-inch hose is used on all residential fires for inside operation and also for overhauuing at commercial building or larger fires.

The real benefit of 1½-inch hose is the promptness with which it can be gotten into operation, and with less manpower.

M. G. Bennett, Chief, Orlando, Fla.: We use 1½-inch hose regularly where the fire has advanced beyond control with a booster line.

Two lines of 1½-inch hose are used at any fire where the officer in command feels it will give a sufficient volume of water to extinguish the fire. It is also used at larger fires after the fire has been brought under control and the small lines are sufficient to complete the overhaul work.

Two lines of 1½-inch hose are loaded in a rack on all apparatus. These lines are 150 feet each and are connected to a wye with a 2½-inch female connection.

Two and a half-inch lines are always stretched in first and the 1½-inch lines connected when needed.

One and a half-inch hose increases efficiency, especially in the smaller residential fires. It also reduces water damage and causes less fatigue to the firemen.

Charles Muirhead, Chief, Danville, Ill.: We use 1½-inch lines on small fires and for hard places to get at and for clean up jobs.

On all fires of large size we use 2½-inch lines to start with, then reduce to 1½-inch to save water damage.

Grover L. Frock, Chief, Springfield, Ohio: In Springfield we use 1½-inch hose as much as possible on all types of fires.

We lay in with 2½-inch hose from plug to fire, then divide with gated wye into two 1½-inch lines. All pumpers carry 150 feet of 1½-inch hose with nozzle attached but not connected to wye.

We use this set-up on all residential and garage fires, autos, etc., as we can have four 1½-inch lines off two 2½-inch lay-ins, and can attack the fire at four different angles at the same time, also cut down water damage with less manpower. Also, when a small fire is being held satisfactorily with a booster and one 1½-inch line, we use the line off the other side of the wye to replenish the booster so we can use the booster line in overhauling operations, thereby reducing water damage.

If 2½-inch lines are used we cut down to 1½-inch lines as soon as possible to cut down water damage and speed overhauling.

The use of 1½-inch lines and booster has reduced water damage to property by seventy-five per cent.

W. M. Mullins, Chief, Roanoke, Va.: We use 1½-inch hose on all pumping engines with 300 feet of hose siamesed into 2½-inch x 1½ x 1½. The first line which is laid out is equipped with a fog nozzle. The second line is equipped with a ⅝-inch shut-off nozzle.

HERE IS THE QUESTION

1. **Do you regularly use 1½-inch hose in fire extinguishing operations?**
2. **What is your procedure with regard to 1½-inch hose:**
   (a) **At what fires is it used?**
   (b) **Is it stretched in before larger lines, or is it used only in special cases?**
3. **What benefits result from the use of 1½-inch hose, such as increased efficiency, reduction of water damage, etc.**

We use 1½-inch hose on all fires, unless when arriving we find the fire has gained such headway that 1½-inch lines will not have any effect on the fire or will not cool it down.

Since using 1½-inch lines we have reduced water damage in business section and residential sections many thousands of dollars. It's faster and more efficient in every respect. In large fires it is used in wetting down and overhauling. An engine company with four men can do the work with 1½-inch hose that it would require six men to do with 2½-inch hose.

M. J. Shea, Chief, Fitchburg, Mass.: We connect 1½-inch hose to 2½-inch on arrival if we feel 1½-inch will furnish sufficient volume to extinguish the fire. It is used on inside dwelling fires particularly.

One and a half-inch hose is much easier to handle than 2½-inch and reduces water damage materially.

William D. Thomas, Acting Chief, Binghamton, N. Y.: For many years previous to the war we used 1¼-inch hose. Since they stopped making this size, we have used 1½-inch hose.

It is carried on the deck rolled up the same as a deck length and taken off upon arrival of the company when in opinion of the company commander, it can be used.

One and a half-inch hose is used on the type of fire on which water is generally used and which does not require a full 2½-inch water line, but which is too big for a chemical or booster line.

As a rule it is stretched in before the larger line and then connected on the regular nozzle that is used on a 2½-inch line and is threaded at the tip for 1½-inch hose. It is also used many times when washing down after a large fire.

When 1½-inch hose is used there is greater efficiency in getting a line in operation, especially when laying a line above the ground floor either by stairway or ladder. When used, we find a great reduction in the amount of water damage.

Victor H. Veit, Stamford, Conn.: One and a half inch hose is used in all building fires where the booster hose is insufficient and 2½-inch would cause unnecessary water damage, in building fires where fog from booster hose is insufficient, to supplement other booster and 2½-inch lines where additional coverage of exposed areas require immediate protection, to siamese additional 1½-inch lines from 2½-inch lines where manpower is limited, and for wetting-down operations. During wetting-down or overhauling operations the men are usually tired and it gets to be an extremely difficult job to drag 2½-inch hose lines around. One and a half-inch hose makes this job much easier.

One and a half-inch lines are stretched before larger lines only when conditions warrant the use of smaller lines, and they are backed up by 2½-inch lines as a precautionary measure. They are also used to an advantage on oil and grease fires where the 10-foot applicator is used. The 1½-inch hose is much more maneuverable and can always be backed up with other lines.

Olaf Sorenson, Chief, Superior, Wis.: We use 1½-inch lines connected directly to the pump for immediate use with 200 feet of hose. We have the nozzle combination of straight and fog

and of the type where we can use a low velocity fog head and applicator.

Care must be used by the officer in charge on the sizeup of the fire. If it is in a large hazardous building, no delay should occur in setting up the 2½-inch lines. Ninety per cent of our calls are for small fires, roof, garage, small dwellings, etc. Here the 1½-inch is superb. No fighting a large line; smaller chance of large water loss; less manpower to handle and control. It adds the incentive to get in and put water directly on the fire.

It is used when the officer's sizeup warrants its use. Care must be used and the limits of 1½-inch hose stream emphasized. To be on the safe side, 2½-inch hose should be hooked up where there is any question of control.

Every city must use discretion on the use of 1½-inch hose setups. The number of engines responding, the manpower available, the hazards of the building and section involved, all must enter into the question. Here the small number of engines responding, the large area covered, the ability to quickly get in on a fire all are factors in its proper use. So far it is all in favor of the 1½-inch lines. We have never been at a disadvantage because of it. In fact, we have been able to use two 1½-inch lines on a running fire and stopped it quickly because of the ease of handling, where I am sure that one 2½-inch line would have had serious consequences. I have noticed a decided tendency on the part of my men to get in with 1½-inch or booster lines where they otherwise would hang outside and pour water in with the 2½-inch lines.

The main body of a fire can be quenched with 1½-inch lines and it still leaves men on the one engine company to handle the booster or another 1½-inch line on exposures, but I must end by emphasizing the need of using good judgment on the first sizeup by the officer in charge.

Joseph L. Trudell, Chief, Bay City, Mich.: This department uses booster lines of 1-inch chemical hose, getting pressure from the regular pump or from carbon dioxide tanks. We have no 1½-inch hose. We back up our booster lines with 2½-inch fire hose. We believe this setup superior to 1½-inch leader lines from 2½-inch line from hydrant which, I believe, is what you have in mind, as each time you use it you have to tap a hydrant for water supply. With the booster setup you have a reserve of water in your booster tank ready for use and can have water on the fire instantly and not lose the time it takes to get your leader lines in operation from the hydrant. After the fire has been extinguished you can get your apparatus back in service much faster with the method we use over the leader line setup. We are, of course, referring to small fires as these methods are adapted only to small fires. There is also the problem of carrying small hose on top of your regular hose and having it in the way in the event of a fire of any proportion.

I have seen different methods demonstrated at our conventions and no one has eliminated the fact that the small hose is still in the way, where with the booster-chemical hose setup, the hose is coiled up on the reel out of the way until you want to use it.

James Louis McLane, Chief, Charleston, W. Va.: We carry 1½-inch hose on every engine. Its use depends entirely on the type of fire. For small fires we use the booster; for large fires it is knocked down with a 2½-inch line, then finished with 1½-inch lines.

In special cases a 1½-inch line is used with a 2½-inch line standing by.

Edward T. Rose, Chief, Wheeling, W. Va.: We have been using 1½-inch hose in our department for the past ten years. Each company carries 200 feet, and a wye that connects to the 2½-inch nozzle. A 2½-inch line is laid to every fire. As soon as the blaze and heat are knocked down, we connect up the 1½-inch hose with a shut-off nozzle, one-half inch tip. We find it works to perfection on resident building fires, and all small fires too large for the booster lines.

A 1½-inch line is easy to handle. One man can run up a stairway with it, where three men would be necessary with a 2½-inch line. It will bend more easily in turning a stream up or down in a partition or into an attic. It has increased the efficiency of the department, and has cut our water damage at least 33⅓ per cent.

William G. Wandras, Chief, Kearney, N. J.: All pumping engines carry 300 feet of 1½-inch hose.

One and a half-inch hose is used at practically all fires in the residential and small business areas of the town.

We leave it to the discretion of the commanding officer of the first engine into the fire as to whether he will use 1½ or 2½-inch hose.

Two and a half-inch hose is used exclusively in the heavy industrial section of the town, but 1½-inch hose is provided for use in overhauling.

The procedure in using 1½-inch hose is to lay a 2½-inch line from the nearest hydrant and connecting up to this with a two-way 1½-inch wye with gate valves. This provides two 1½-inch lines to operate with. If the hydrant is close to the scene of the fire the 1½-inch wye is connected directly to the hydrant.

One and a half-inch lines are always backed up by the second engine to arrive with 2½-inch lines.

The use of 1½-inch hose results in a great reduction in water damage, increased efficiency in handling lines and releases manpower to be used for other purposes at the fire.

L. L. Petrey, Chief, Mobile, Ala.: All the engine companies carry 150 feet of 1½-inch hose folded in a partition on the left side of the hose body, with nozzle connected and 2½ x 1½ x 1½ siamese connection connected to the hose. On small residence fires that are too large for a booster line, a 2½-inch line is laid from the fire hydrant in front of the building that is on fire. The captain uses his own judgment as to whether it is necessary to use the 2½-inch nozzle or connect the 2½-inch siamese connection and use his 1½-inch leader line. We find that on residence fires the 1½-inch leader line is easier for the men to handle and quicker to get into position to attack the fire. It does less water damage. All 2½-inch nozzles are equipped and threaded to take the 1½-inch leader line and the 1½-inch leader line is always used after the fire has been knocked down by the 2½-inch line.

Perry H. Kirch, Chief, Dubuque, Ia.: We do not use 1½-inch fire hose in our department. However, we use ¾-inch and 1-inch booster hose backed up with 2½-inch hose.

M. J. Cody, Chief, Stubenville, Ohio: We use 1½-inch hose where conditions warrant its use. Like all other fire fighting devices, it has limitations.

Our department uses 1½-inch hose on residential fires by connecting a gated wye to a line of 2½-inch hose from which two 1½-inch streams can be applied on the fire if necessary. It is used on fires that do not call for larger streams and is stretched in ahead of larger streams where it can be used to good advantage, due to its flexibility.

The chief benefit derived from the use of 1½-inch hose are less water damage, takes less manpower to handle, and consequently leaves more men for salvage work, ventilation, laddering, etc.

Our nozzles are so constructed that we can attach a 1½-inch line by removing the tip. Large hot fires call

Curtains for Zacchini Cannonball Circus Act!

A crash between an oil truck and the truck used by Edmund Zacchini and his daughter in their famous circus act, in which they were catapulted from a cannon, temporarily ended the act, with a loss reported by Zacchini at $10,000. The oil truck and "cannon-catapult" vehicle were both wrecked by the crash and subsequent fire, although neither of the two performers was injured. The driver of the oil truck suffered burns and abrasions. The accident occurred on the Gary-East Chicago boundary line.

for large streams of water. Common sense must always be applied and judgment must precede action or disaster will be the result.

* * *

The following is in answer to a previous round table on dewatering basements of buildings following fires.

E. L. Erratt, Chief, Vancouver, B. C.: We use syphons or 500-gallon trailer pumps, of which we have several turned over to us since the war, to pump out basements of buildings following a fire. These pumps formerly belonged to the Government .

August Sokoll, Chief, Sheboygan, Wis.: The Sheboygan Fire Department does dewater basements of buildings following fires.

We have no equipment for this job. The method we employ is to bail the water out with buckets regardless of depth of water to be drained. This is quite burdensome when there is much dewatering to be done and is likewise arduous upon completion of the dewatering when the floor is mopped. There is no charge for this service.

Rocco Cacciatore, Firemen, Yonkers, N. Y.: The Yonkers Fire Department dewaters basements of buildings following fires. This is one of our regular duties.

Basements are dewatered by drains if there are any present. Portable pumps are used for large quantities of water, and at other times a bucket brigade is used.

The above methods have proved satisfactory. I do not believe fire engine pumps should be used in the performance of this work.

There is no charge for this service.

H. P. Constantine, Chief Engineer, Bangor, Me.: The Bangor Fire Department does not pump out cellars of buildings following a fire as this practice is injurious to the pumping apparatus.

In cases where it is necessary for basements to be pumped out, the city sewer department is called and they caary out the project.

This work is done free of charge, but is only done at the request of the fire department.

Harold E. Nickerson, Chief, Brunswick, Me.: The local fire department does dewater basements of buildings after fires and also in other emergencies.

We have a small ditch pump driven by a gas engine, and although small and light, it is built for capacity and throws a lot of water.

Each spring we pump out several cellars to prevent flooding stock or oilburners. The cost of operating is so small that no charges are made unless we hire extra help to continue pumping over a long period.

This has proven very satisfactory to the department and property owner. It usually adds another supporter of the fire department.

Frank Pulaski, Chief, Boise, Ida.: We dewater basements of buildings after fires with the aid of one of our older pumpers. There is no charge for the service.

* * *

The following are in answer to a previous question on burning grass off empty lots:

George Begeman, Captain, Pearl River Hook and Ladder Co., No. 1, Pearl River, N. Y.: I do not feel that it is the responsibility of the fire department to burn off grass on any property vacant or otherwise.

The city or village would, I believe, be responsible for damages resulting from the burning of grass by the fire department. The fire commissioners of our fire district have had a waver or responsibility drawn up which the respective owner or tenant must first sign before our fire department can burn said grass.

I do not believe that the burning of grass by the fire department would encourage the citizens to burn in the open. There is no excuse for ignorance of the law. In our fire district the fire department as well as the citizen must first obtain a fire permit made out by a fire ranger or warden, on which it clearly states the person signing said document must use all precautions and assume all responsibility for his burning of grass.

Yes, a fire department can burn off grass provided that it has sufficient equipment or manpower. We have but a small department, and my company alone has succeeded in burning off twenty or more pieces of property and also answered twenty-nine alarms in the month of March.

Thomas M. Lane, Chief, Alameda, Cal.: As most cities do, we post all vacant lots. After a certain period elapsed, we sent out crews with our old extra apparatus and burned the lots off, making a charge for labor and service and attaching this charge on the owner's tax bill.

This last year our city purchased a small grass cutter operated by a gasoline engine. One man operates it and cuts the grass down about three times each year, which does away with the fire hazard, also presenting the appearance of a clean city. We make no charge for this service which is done by the Street Department.

C. W. Brown, Chief, Wichita, Kan.: In my opinion, it is definitely not the responsibility of the fire department to burn off vacant areas, although such areas constitute fire hazards. It seems to me that this responsibility lies entirely with the property owners or renters, whichever the case may be and such persons should remove the hazards, or better still, they should not permit their premises to become fire hazards in the first place.

I believe the city would be liable if adjacent property was damaged. It is my understanding that some cities have experienced such difficulties and people who burned such areas, especially were held liable.

It would probably encourage many of those living in cities where they are not permitted to burn in the open because they would probably feel—particularly those familiar with the no burning ordinance—that if the fire department could violate the ordinance and burn whenever they please, why should they be criticized or fined for doing a little fancy burning around their premises to get rid of some excess grass and leaves.

It seems to me that to dispatch equipment on such missions and leave property unprotected for the length of time it would take other equipment to respond in that particular area, could be serious, not only from the property aspect, but to life as well. While discussing such missions for the fire department, it should be remembered that the first few minutes of a fire are often the deciding factor as to the amount of loss.

E. L. Mathews, Chief, Tuscaloosa, Ala.: I do not believe its the duty of the fire department to burn off grass on vacant lots as it would keep a company of men tied up quite a bit during each year, and, too, it would encourage others to burn in the open. My city has an ordinance against such fires unless a written permit is obtained from the chief.

W. K. Moore, Chief, Yakima, Wash.: It is not the responsibility of the fire department to burn grass off vacant lots. It is the responsibility of the property owner and should be so established by ordinance and enforced.

If the fire department did the burning, they would be liable.

We do not have either the manpower or the equipment to spare for this type of work without leaving our high value district unprotected.

Harry Weir, Chief, Kingston, Pa.: We have taken the stand that the fire department is fostering a hazard in not burning over vacant lots where a grass fire potential exists. An ordinance calls for the cutting of grass and weeds in vacant lots, but in many instances plots are owned by out-of-town realtors or individuals and notice could not be given until the danger had passed.

There is little possibility for a successful lawsuit if adjacent property were damaged in the event of a grass fire, although an action might be won if persons in the neighborhood could prove to the court that the hazard was reported to an authorized official and no action was taken.

Assignment of one engine is ordered for grass fires. A regular first alarm assignment rolls when it is not clear to what extent the grass fire is confined. Each engine in the grass fire period carries an extra number of back pack pumps. When it is determined upon arrival that the fire can easily be controlled with portable equipment, the engine is returned to service after several men have been left at the scene to burn over the remainder of the plot.

There is little doubt in our minds that it is a "cheap" municipality or fire department that cannot "afford" to send the best it has to each alarm. Many a grass fire has resulted in a three-alarm all hands worker. An alarm is an alarm, except when the person reporting the fire is cool and sensible and can assure the operator that a certain piece of equipment is all that is needed.

Many unsightly, potential hazard vacant lots were born during the war because of the shortage of manpower to keep them cleaned and trimmed. America at peace will probably find that returned manpower will be utilized to beautify these same plots and in turn, the fire department will get some well earned peace.

W. H. Hazell, Chief, Hutchinson, Kans.: It should not be compulsory for the department to burn grass off vacant lots within the city limits. However, here in the area where grass becomes a natural geographic hazard, we have felt that such a service did remove certain possibilities

of fire. As a result, we have been burning off grass in those places that were not too thickly settled and where buildings would not be endangered should fire get started.

We have paid several small claims in the past. We have had our city attorney draw up a form, called "request and release," which the owner must sign before we will go out and burn off these places. This has relieved the situation.

I do not believe this practice will affect the burning of trash and other debris in the open as the public here seems to believe that they will receive quick action. They have always lighted fires and then called the fire department. I believe the way we are working it saves us some minor fire runs a year. Aside from this, it gives us a contact with our public that we wouldn't ordinarily get.

We always designate two men with an auxiliary truck to go out and do this burning. In this way our valuation is not left unprotected. It would be foolish to designate an entire company to go out and burn grass. If we did not have this system, we would be answering one grass alarm after another and still have companies out on them, leaving property in their respective districts handicapped for coverage. Due to radio operations, we are able to dispatch companies to other fires. However, we consider this as an alarm with delayed action.

J. Ludie Croom, Chief, Wilmington, N. C.: I do not believe it is the responsibility of the fire department to burn off grass on vacant lots within the city limits. If the city burned off the property, they would be liable for damage to adjacent property.

Our fire department cannot afford to dispatch equipment on such missions, leaving valuable property unprotected for the length of time it would take apparatus from other districts to respon to that particular district.

Frank Bennett, Chief, Durham, N. C.: In my opinion. it is not the responsibility of the fire department to burn off the grass on all the vacant lots in the city. If we undertook this task in the fall and spring, it would require a special crew of six to eight men to do this work. It is my opinion that property owners should be required to clean off their own premises with proper instructions therefor from the fire service.

The city would not be liable if fire extended to adiacent property any more than a fire in a building spreading from one to another.

If the department undertook this job, citizens would be encouraged to burn in the open.

The fire department cannot afford to dispatch equipment on such missions. I believe it would pay dividends to the city and property owners both if there would be a reasonable fee charged for burning off grass fields. This would be used to defray expenses for help in doing this work with supervision of a member of the fire department on the scene and special equipment for this work. Off-shift men could be compensated for this supervision. With this in effect, it would be necessary to require a permit.

Clyde L. Peterson, Chief, Ogden, Utah: Under our city ordinances it is not our responsibility to burn off grass from vacant lots. If we did and adjacent property were damaged, the city would be liable for damages. I also believe it would encourage others to burn in the open.

At present it would be impossible for the fire department to dispatch a crew to burn off vacant lots and leave valuable property unprotected, due to lack of equipment and manpower.

R. O. Wilson, Chief, Marion, Ind.: It is not the responsibility of the fire department to burn grass from empty lots.

We have an ordinance which prohibits an owner to burn trash within a certain number of feet from a building.

We cannot afford to send equipment for the purpose of burning off grass, we would leave the district from which the equipment was sent, unprotected.

Thomas G. Fisher, Chief, Norwood, Ohio: G. A. Goodin, Chief, Muskogee, Okla.; L. A. Moore, Chief, Fresno, Cal.; Frank D. Shaw, Chief, Greensboro, N. C.; R. S. Hatten, Acting Chief, Huntington, W. Va.; Selden R. Allen, Chief, Brookline, Mass.; John F. Moroney Chief, Meriden, Conn.; and S. J. Flores, Chief, Shreveport, La., all report that it is not the responsibility of the fire department to burn off grass on vacant lots within the city limits, and that the fire department cannot afford to dispatch equipment on such missions and at the same time leave valuable property in their respective districts unprotected for the length of time it would take apparatus from other districts to respond to that particular district.

* * *

The following replies are in answer to a previous round table on rural fire fighting apparatus.

George A. Neep, The Neep Equipment Company, Portland, Ore.: Although I am not a chief or in any way connected with a fire department, I would like to offer my comments as to the proper size of water tanks on rural fire trucks.

Due to the fact that I have given this subject much thought and have had hundreds of discussions with chiefs and firemen all over the Northwest, I feel that I have learned something. In my opinion, too many departments are considering tanks with too great a capacity.

Too many go on the theory that having more water will enable them to do a better job but lose sight of many important points such as the weight of the larger capacity tanks, slowness in arriving at fires and many other bad features of the large tanks.

In most instances, the city or district, uses trucks with a capacity of 1½ tons. These trucks are equipped with motors with a doubtful horsepower of 100, or perhaps better. In just about all instances they are far too high geared for heavy duty work. Some are using trucks with the two speed rear axle which is, of course, a big help where the going is tough, but it still appears that too many are equipping these rigs with too much water. In my opinion, if a fire cannot be extinguished with a tank carrying 300 gallons, it will not in most cases be extinguished with one carrying 500 gallons. Enough time may be gained by the less weight in getting to the fire to allow for any difference in water capacities.

What seems to me as the ideal setup is two rigs, one with a 200 gallon tank and a pump driven either from the truck's transmission or from the front end of motors and a follow-up tank with a capacity of 1000 gallons or more. Although the truck with the larger capacity will not arrive at the fire as soon as the lighter rig will, it should be of great service in prolonged fires.

Harold A. Atkinson, Ex-State Fire Truck Driver, San Francisco, Cal.: For forty-five months I worked with the State Division of Forestry in California and during that time we had many rural fires.

I believe the capacity of a booster tank should not be under 400 gallons and should be boosted with a 250 G. P. M. front or mid-ships mounted pump. For a running fire a booster high pressure line is good or a 15-foot jump line if combatting a house

(*Continued on page* 544)

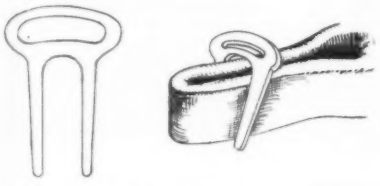
Wilson Borough Quad Has Many Features

The Borough of Wilson, Easton, Penn., and more particularly, its Fire Department, headed by Chief C. C. Stem, are acclaiming a new quad which combines a number of "streamlined" features. The piece is a Buffalo quadruple combination, equipped with a Hale 750 GPM two-stage centrifugal pump, powered by a Hercules 186 HP, dual ignition motor. The hose loads—extensive for this sized unit—include 1500 ft. of 2½-in. hose, two 100-ft. lines of 1½-in. hose, and 150 ft. of booster hose, the latter fitted with combination spray and solid stream nozzle, supplied by a 150-gal. booster tank. Over 250 ft. of ladders are carried, the longest being a 50-ft. 3-section trussed Bangor.

Short Cuts and Gadgets

POCKET HOSE CLAMP FOR DRY LINES*

A simple but effective "pocket clamp" can easily be made from round steel or flat pieces on edge. It can also be cast from bronze or aluminum alloy.



Each man on an engine company can pack one in his pocket to be used at the tail-board of the pumper or hose wagon, thus allowing the hydrant man to turn on the water as soon as the hook-up is made to it. This permits the nozzleman to advance with a dry line and when water is wanted the hydrant man simply removes the clamp and proceeds to the fire.

The inside edges of the clamp should be highly polished in order to reduce friction.

*From *"Tricks of the Trade"*, 1941 Fire Department Instructors' Conference.

* * *

DECK PIPES ON LADDER TRUCKS

Ladder trucks—the aerial type in particular—are not regularly equipped with turret or deck pipes. However, our roving reporter reports an increasing number of departments are equipping new and old—ladder trucks with such appliances.

In the new cab jobs the pipe is fastened in a brace atop the cab so that it can easily be swung into position. It is attached, by gated connection, to a manifold and pipe which is carried down behind the cab where it is in turn connected to a cross member pipe having two inlet connections on either side of the truck. In one mounting, our reporter states they had utilized sections of old sprinkler intake-pipes and hose-connections, by welding or brazing these to the cross member pipe and the riser.

Because the ladder truck (first due) is usually located in front of the burning structure it is ideally situated for the quick operation of a heavy duty stream and turret pipe, when and if the size and location of the fire warrants. Further, on a ladder truck, it is ideally situated to protect laddering and rescue operations or to sweep the entire front of a fire-building, and set up a water curtain.

* * *

COLOR TIPS GIVEN "TIP-OFF"

We've recounted the idea of coloring hose couplings and fire department tools to identify them with certain fire companies* and now comes a suggestion that nozzle tips also be colored to classify and identify them by size.

This scheme is followed by several fire departments, one of them the New Haven Fire Department, Chief Paul Heinz. The idea is to paint a thin stripe of color around the tip so that at a glance a fireman will know whether it is a ⅝-in., a ¾-in., 1-in., or larger. Thus a yellow stripe may signify 1-in.; red, 1¼-in., and so on.

*The plan may not be so adaptable to large departments where there are many companies and there would of necessity be duplication of colors.

* * *

TO PREVENT CHAFING OF BOOSTER HOSE

We noticed a "gadget" on a pumper in a New England fire station that merits mention, as an answer to the problem of eliminating chafing of booster line hose when it is pulled off the rear-end reel. Not all old pieces of apparatus have rollers over which leader lines can be snaked off without chafing the rubber. In this particular company, a part of rounded chromium auto bumper was mounted on each side of the reel hose-aperture so that as the hose was pulled out to either side, it paid over the buffer.

* * *

NOVEL ROAD CHOCK

This idea for carrying wheel chocks, from one of our readers, A/Chief Officer William Monaghan of the Cork, Ireland, Fire Department, has the germ of a suggestion for a similar application to our own fire trucks, equipped with artillery wheels.

Of course, this gadget is distinctly of "foreign extraction" but we are glad to publish it here for our sharp-eyed readers who are always seeking hints that may start them on the way to a worthwhile "short cut." Here's what our contrib' says:

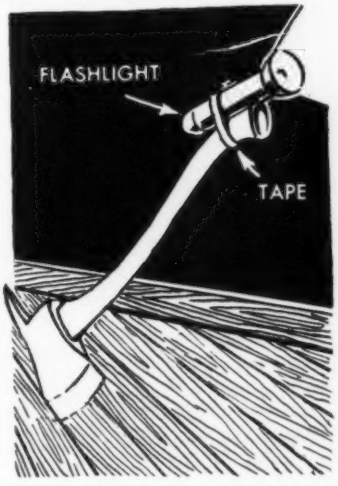
"I am enclosing a drawing of a new method of fixing road chocks for the fire escape (British ladder) when the latter has been positioned on the fire or drill ground. This new and improved method does in three seconds what it took four men as many minutes to do when these chocks were hung under the escape axle.

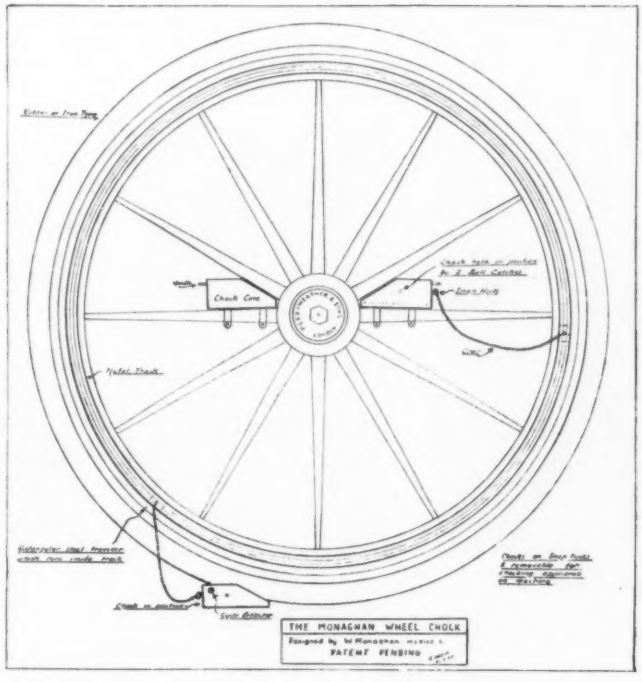
"Your readers might like to know something about this new idea for saving life from fire by quickening the process. It is a curious thing but several of the brain waves described by your readers in your January issues have been in use in my brigade for several years. It is most remarkable to say the least, that the same inventive thoughts were in my mind as in several of your readers."

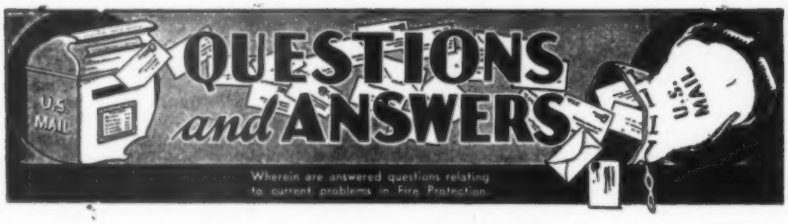
* * *

SIMPLE FLASHLIGHT HOLDER

The alert fire-fighter will think of many ways to utilize this "gadget" in making easier or safeguarding his work where light is needed. Any regulation fire axe, a flashlight and bit of tape (or even string) makes a combination that permits focussing a light on a dangerous opening, or stairwell path, or a work operation. This idea is adopted from Popular Mechanics monthly.







Deficient Range of Foam Stream

To the Editor:

What is the life of foam powder as packed in 50-pound pails, both unopened and opened?

We use a foam generator and three lengths of hose, with nozzle having a 1¾-inch tip and with a pressure at the generator of 110 pounds, but can only secure a 35-foot range. What is likely to be the trouble?

E. K. H.

Answer: When well packed in cans and not subject to moisture, chemical foam powder should last indefinitely. Once opened, the life of the powder will depend upon moisture and temperature of the storage space. It is suggested that you do not place reliance upon a can that has been opened.

To your second question, in which you say that when using generators and three lengths of hose, with nozzle having a 1-¾-inch tip and with pressure at the generator of 110 pounds per square inch you can only secure a stream with 35-foot range:

Under the conditions you state the range should be greater. The trouble may be (1) in the powder; (2) the nozzle; (3) the generator or, (4) the hose lead-off. We assume you are using the regulation Underwriters' nozzle for the foam line. This should have no obstructions and have a straight waterway. If you are using a controlling nozzle this may be part of the trouble.

If the water you are using is very cold, this may have some effect on your stream because with very cold water the powder may not be free-flowing. We suggest that you check this. Where very cold water is used, try using two lengths instead of three, and try varying the pressure from say 90 pounds per square inch to 120 pounds per square inch to see what reaction you get.

Finally, check your powder and your generator. In using, see that no kinks or bends occur in the lead-off line. If you have the old Model 25 "Foamite" generator the nozzle tip should be 2¼-inch, not the 1-¾-inch, which is staisfactory for the old models 15 and 17 and for most later generators.

Usually pressures around 90 pounds per square inch are best in the operation of the single type. They can be greater for the dual type. Original instructions for using the first generators called for pressures at from 75 pounds per square inch to 100 pounds per square inch. You might check on your inlet control valve to see that it is cleared. Also, do not push down the powder into the hopper except that at the end of the run the powder may be assisted by pushing it from the edges of the hopper to its center.

It is a good plan to keep your hopper well filled during operations. With 75 pounds to 100 pounds per square inch the older models of generators will use about 50 to 60 gallons of water per minute and will draw in 70 to 80 pounds of powder. The stream range under under these conditions, if all is working well, should be around 100 feet.

Fire Protection of Potato Chip Plant

To the Editor:

I would like information on the fire protection of a potato chip plant. This industry uses vegetable oil for cooking and fuel oil for heating it.

R. E. W.

Answer: There is very little basic data bearing on the subject which is helpful. Also it is difficult to give you intelligent recommendations without knowing more about the type of plant in which the work is conducted, the production processes used and so on.

Considering first, the fuel oil hazard, we believe the same protection that is advocated for oil heating plants and fuel oil storage generally should apply in your industry. This calls for the storage, handling and use of hazardous liquids in accordance with present-day fire prevention codes, such as are covered by the sample fire prevention codes of the National Board of Fire Underwriters. Fires in or resulting from oil heating plants are of the Class B type and are fought with (1) foam, (2) water fog, (3) CO_2 and (4) Dry Powder.

Undoubtedly, your main hazard will come from the heated or boiling vegetable oils used for cooking. We do not know just which of the vegetable oils are used in your plant, but assume it is cotton oil. . . .

The vegetable oils are divided into two general classes: volatile oils and fixed oils. Cotton oil is non-drying oil (as contrasted with linseed) and, like olive oil and kindred fixed vegetable oils, involves no hazard from explosive or inflammable vapors until heated far above ordinary temperatures. They are of course inflammable when heated to ignition point, but their principal hazard is from their proneness to spontaneous ignition when exposed to the air on rags or wiping material.

These facts suggest your plant fire protection falls under two headings: (1) Protection against fire directly connected with the cooking or other manufacturing processes and (2) Protection against fire resulting from the products or methods used in the manufacturing processes—i.e., spontaneous ignition.

Without knowing more about your processes and the plant itself, we can only assume that fire might result from these causes: (1) Boiling over of the cooking oils (2) Breakage of equipment which would permit oils to escape and come in contact with flame (3) Breakage in the product supply lines with the same result (4) Ignition of grease or oily accumulations either in or around the cooking equipment (5) Careless use of lights or matches (flame) in or near materials impregnated with oil, or oily residue (6) Carelessness in use of oxy-acetylene cutting or other repair equipment (7) Defective or improper electric wiring.

These causes are not arranged in the order of importance, but they will serve to suggest the preventive and extinguishing procedures to be followed: (1) Fires in the tanks, vats or other oil containers may be extinguished in the same manner and by the same extinguishing agents used on any vegetable and mineral oil, and some petroleum oil fires. That is to either smother the fire by excluding the oxygen by covering the container with a tight fitting lid; sealing the burning liquid with a foam compound; utilizing fine water fog (fixed or portable installation); or using CO_2 or dry-powder extinguishing agents

As we understand it, it is desirable to extinguish such fires with the least possible damage to the stock and consumption of cooking fuels also with the least hazard to the personnel.

If this is true, the use of fine water spray or fog, either from fixed installations (low velocity sprinkler heads) would probably be suitable, designed to operate automatically or the use of fog nozzles on a hose system might be advisable because there would be less impregnation of the cooking stock or fuel, with injury to materials than if a chemical extinguisher were used. Carbon dioxide installations have been effective in protecting such hazards where the type of cooking equipment permits its installation (that is, in a confined space where the CO_2 can be discharged and applied in sufficient volume to quickly smother the fire.)

Just which type of installation—fixed or portable—must be determined by a study of all the factors involved, including property and stock at risk; whether plant operates day and night; suitable personnel to man and operate any portable fire-fighting equipment, costs, etc.

(2) and (3) The above applies equally well to protection against fire resulting from breakage of equipment, which would allow combustible fuels to come in contact with flame or fire. The cooking installation itself should be so located with respect to surroundings that a "spill" fire, resulting from a break or rupture would be confined to the smallest possible area. If in a booth, or small room, the floor around it might well be dyked. In this type of installation, automatic closing doors, and automatic fire extinguishing systems are desirable. Further, if in the manufacturing processes, there are flammable or toxic fumes given off by burning cooking oils or gases used in the processes adequate ventilation to the outside should be provided. Some factories install automatic vents which, in the event of a fire or explosion, carry off the fumes or fire to the outside of the building.

(4) The prevention of ignition of grease or oily accumulations is largely a matter of housekeeping and carefulness. There are products on the market which can be used to clean floors that become covered with solvents or other flammables. Sawdust, shavings or the like should not be used in this connection.

(5) There is little need to emphasize

(*Continued on page* 592)

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FIRE EQUIPMENT MANUFACTURERS AND REPRESENTATIVES

The Round Table

(*Continued from page* 536)

fire; 1½-inch double jacket hose can be used with a ¼-inch tip to conserve water. It used to take me from nine to fifteen minutes to dump my tank if water is used properly. I have seen three 300-gallon pumpers put out a fire nicely if all men are trained to their part. On grass fires I have put out many fires alone with a 400-gallon pumper by holding the nozzle in my left hand and going around the fire, or held it down until help came along.

I believe a Ford-Marmon-Herrington four-wheel drive is the best all around rural fire truck, equipped with a Hardie fire pump and double 15-foot jump lines and 400 gallons of water.

In fighting a mountain or foothill grass or brush fire, one must realize that all regions do not have the same foliage. Here we have maganita, mesquite, oak, deer brush, greasewood and many more highly inflammable foliage. Our best truck was a 150-gallon crew truck holding eight men, including a driver, foreman and six fire fighters. The truck had a front mount pump and most of the time we used tools to make a line around the fire. Our best hose was 1-inch single jacket cotton hose because pulling a 185-foot reel line uphill is hard work.

Refilling booster tanks was done from canals, streams, etc. If two or five trucks were on a fire line, there were trucks going back and forth all the time from the fire to the source of water.

I have fought many a tough fire by laying lines from a well or ditch and pumped for three or five hours without stopping with good results. We are fortunate in having a good irrigation system in California and it helps in rural fire fighting.

As all our trucks or pumpers are used in rural fire fighting, it is necessary to have all kinds of equipment. I will quote from a unit I drove in 1944 in San Joaquin Valley.

The truck was a Reo Speedwagon cab-over-engine. The cab held five men. It had a front-mounted Barton 250 G. P. M. pump with ten speeds forward and two reverse. It was equipped with 400 feet of 2½-inch hose wyed to two lays of 150 feet each of 1½-inch hose. One lay of 1½-inch hose was connected to a discharge valve in rear of truck. The booster line consisted of 215 feet of high pressure 1½-inch hose.

The equipment carried included the following: 4 back pumps, 4 axes, 4 fire tools, 4 Barron tools, 4 brush hooks, 1 pike pole, 4 R. P. shovels, 3 wire brooms, 1 6-foot crosscut saw with handles, 3 10-foot lengths of hard suction hose with strainers, 1 roof ladder, 1 24-foot extension ladder, 2 buckets, 1 large piece of canvas, 1 3-gallon soda and acid extinguisher, 1 set choke, 1 12-foot chain, all kinds of nozzles, adapters, connections, spanners, etc.

I believe that some of the Army trucks like the 6 x 6 cargo would make excellent tank trucks, or if possible, you could use two with tanks and small pumps to fill up fire trucks at a fire in a house or farm building. The 4 x 4 weapons carrier would make an excellent crew truck, hauling men and tools in seats.

The heavy equipment used by most cities in the United States is not built for fast long runs and light weight fast tankers can be used in rural fire fighting to the best advantage. I have made runs of from 20 to 175 miles to fires. We had a large grass fire covering 15,000 acres and I helped save farm buildings by keeping them cooled down and watching for sparks for a whole day until the period of danger was passed. I traveled 75 miles one time and hauled seven men to a large mountain fire.

Leonard J. Burgunder, Deputy State Fire Marshal, Spokane, Wash.: I have read with much interest the discussion carried on relative to booster tank capacities.

First of all, I wish to compliment Chief Rod A. Porter of Portage, Wis., for the statement he made in the last paragraph of his reply. He stated, "Rural America is just waking up to the benefits of sound rural fire protection planning. I believe that it is the duty of municipal chiefs to foster such a plan in the rural areas around them which do not now have fire protection. By so doing they will be performing a worthy service."

It has been my experience in working with rural fire departments that they do not receive much encouragement from municipal fire chiefs when, as a matter of fact, it is usually these rural areas that support the businessmen of the municipalities. For that reason the fire chief could certainly spread good will if he would only cooperate a little more with the smaller rural departments.

As to the correct capacity of booster tanks, I do not think it is humanly possible for any man to state what the correct size should be unless he is fully familiar with all the existing conditions in the area in which the truck and tank are to be used. Roads, conditions and types of burnable material involved have, in my opinion, considerable to do with the size of the tank needed.

We have in operation in the State of Washington approximately 100 rural fire departments and we have about that many different size booster tanks due to the various existing conditions in each community. For instance, in one of our rural departments they carry a thousand gallons of water and have little difficulty in reaching all the fires in their district. One hundred miles away a truck with that capacity of water would be unable to reach one-third of the fires due to different soil conditions.

I am a firm believer in plenty of water, but you cannot jeopardize the mobile power of a truck by overloading. We endeavor to study the conditions throughout the entire fire district in which the truck is to operate and then make our recommendations as to the size of the booster tank.

I would again like to emphasize what Chief Porter stated, that we can no longer confine ourselves with city limit lines, but must assist all fire departments within our reach regardless of whether they are large or small.

* * *

The following reply is an answer to a previous question on choosing a chief:

William J. Blair, Chief, Nantucket, Mass.: Politics have always been known to break a man's heart and also rob the public of a skilled craftsman. He's allowed to reach to the top of the ladder, only to have it suddenly pulled out from under him.

I believe that most fire commissioners are alert to the value of their fighting men, but in this case, it would seem that the commissioners have acted in

(*Continued on page* 584)

FALSE ALARMS

A Military Success

A soldier and his bride have gratefully named their first child "Furlough."

Battalion Chief: "Your reports should be written in such a manner that even the most ignorant may understand them."

Lieutenant: "Well, sir, what part is it that you don't understand?"

"What was dis here ghost you seed doin' when you las' seed him?"

"Jes' fallin' behind, mistah, jes' fallin' behind rapid."

We never used to be able to find grandma's glasses but now she just leaves them where she empties them.

Money—the long green with the short future.

Teacher (pointing to a deer at the zoo): "Johnny, what is that animal?"

Johnny: "I don't know."

Teacher: "What does your mother call your father?"

Johnny: "Don't tell me that's a louse."

The new wedding pledge for a bride is: "To love, to cherish, and inspire." For the groom it will probably be: "To love, to nourish, and perspire."

Mary had a little lamb
Its fleece was white as snow,
But everywhere that Mary went
'Twas her calves that stole the show

Uncle Willie, a small businessman, sold out lock, stock and barrel. He promptly reinvested his money in a skunk farm. Upon taking possession of his newly acquired business venture Uncle Willie is supposed to have said: "Now, maybe the government will keep its nose out of my business."

The Navy Again

Sailor: "Waiter, bring me a glass of tomato juice for a pickup."

Waiter: "Yes, sir, and what will you have for yourself?"

A maiden's love is like spring. She gives that come-hither look, and the sap begins to run.

Speeches are like steer horns—a point here, a point there and a lot of bull in between.

GI: "Is that ice cream pure?"

Waitress: "As pure as the girl of your dreams, Soldier."

GI: "Give me a ham sandwich."

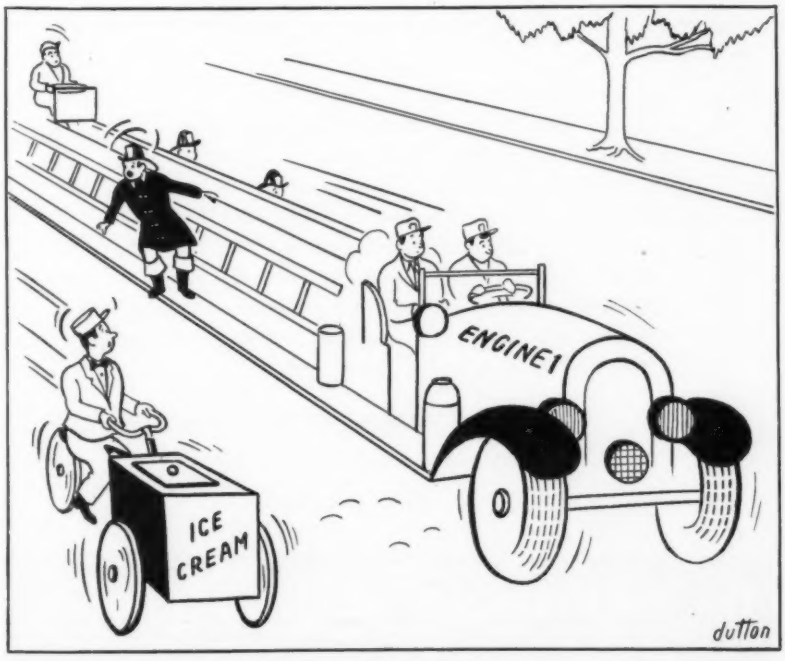
"I like the shy, demure type," observed a sailor, "you know—the kind you have to whistle at twice."

The old fashioned girl wanted an all day sucker. The modern miss wants one only for the evening.

The average country cottage is five rooms and path.

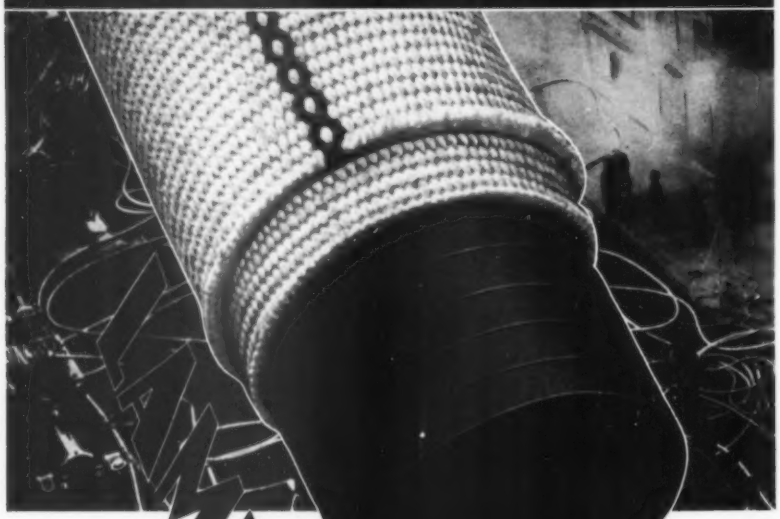
Nothing is so satisfying to a wife as to note the double chin on her husband's old sweetheart.

Whoever named it necking was strongly ignorant of anatomy.



"Three Vanillas and Keep the Change!"

Crackerjack
MUNICIPAL FIRE HOSE



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tubes for *longer* life, *smoother* waterways

Laminated, calendered sheets vulcanized into a single body offer maximum insurance against flaws, for the slightest imperfection in one sheet is covered by all the other sheets. Each rubber sheet is calendered through smooth steel rolls for smooth, uniform thickness. Weak spots are thus eliminated, and friction loss is reduced to a minimum. The extreme care taken with both the tube and jacket of CRACKERJACK produces a flexible, easily handled hose that often is still going strong after 20 years of active duty. Figure your hose costs per foot—per year!

LAMINATED *for maximum protection against flaws*
LAMINATED *for uniform uncorrugated thickness*
LAMINATED *for smoothest waterways*

The AMERICAN RUBBER Mfg. Co.
Park Avenue and Watts Street • Oakland, Calif.

What Advance in the Fire Service?

(*Continued from page* 507)

in quantity, close together, the danger when fire involves them is comparatively small.

However, in plants in which magnesium fabrication is done, the hazard is severe. The likelihood of large fire is ever present.

Zirconium, particularly in powder form, is one of the most hazardous of the metal powders. It is remarkably resistant to atmospheric deterioration, but has a comparatively low ignition. Ignition temperature of one sample was determined by the Bureau of Mines as 410 degrees F. It is more readily ignited than magnesium powder although dust cloud explosion pressures are not as high. When ignited, zirconium burns very rapidly with intensely brilliant light.

The metal is usually supplied as a powder, wet with water or in small spongy lumps. In such form it is used in the manufacture of vacuum tubes parts.

Both magnesium and zirconium bring to the fire service new hazards which must be fully understood. It is hoped that tests will ultimately be run by a committee of fire protection engineers to develop the information needed by the fire service in protecting against fire hazards of these products.

Inflammable Liquids

Several new inflammable volatiles have been developed incidental to the nation's war efforts. One in particular, which has received a good deal of attention, is butadiene, a prominent ingredient in the manufacture of synthetic rubber. Butadiene is particularly significant in the fire protection picture, because of its high inflammability and the low temperature at which it boils, 24°F. Furthermore, it is apt to be encountered in large quantities in synthetic rubber plants.

Contributing Hazards

In addition to the new hazards previously reviewed, there are several which might be classed as contributing hazards rather than direct hazards.

In the first place, there is the tremendous increase in air travel taking place, and the projected further increase. With the growing adoption of air transportation, both by established air lines and private planes, the fire hazards from this source will be materially increased. There is hardly a city of any size in the United States today that hasn't one or more airports. Furthermore, planes going to or from airports are frequently required to pass over cities. The fire hazards brought about thereby are endless.

When it is recalled that some of the larger planes are virtually flying tank wagons, the seriousness of this hazard may be appreciated.

Other contributing hazards which must be watched with concern are:

Overcrowding of housing facilities.

Relaxation of building codes to meet housing shortages.

Abandonment of defense housing areas.

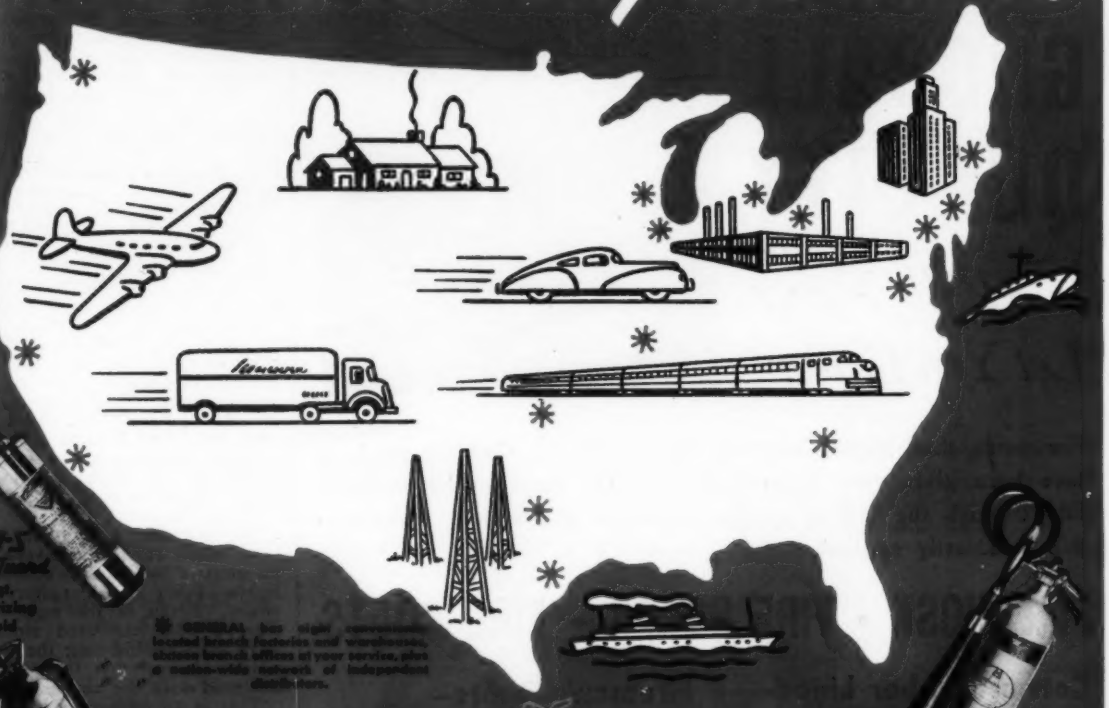
Closing of defense plants.

Increase in arson.

New building construction incorporating modernistic design such as artificial

GENERAL Offers:

Protection for Every Fire Hazard



There is a *right* GENERAL extinguisher for every fire hazard—and this *right* extinguisher should be the one located near that hazard. Protect your life and property. Make sure you have the correct GENERAL fire fighting equipment.

Through its branch offices and warehouses in every section of the country, General Detroit serves every major American industry. A GENERAL representative is nearby to serve you. Do not hesitate to call on him for advice and dependable fire protection apparatus. Write for your free copy of General Detroit's File Reference Folder which tells where to use each type of extinguisher.

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For more than three-quarters of a century, Goodall products have been giving the *service-with-safety* that can be achieved only through the use of *quality* materials and skilled craftsmanship steadfastly applied.

FIRE HOSE · FIRE BOOTS · FIRE COATS

Cotton Rubber Lined—

A double jacket hose that has the strength to carry required pressures *safely*, and the durability to withstand *all* service hazards *longer*. Furnished with or without Underwriters' Label.

Equally well-known for reliability and value are Goodall's Chemical Engine or Booster Hose, Fire Engine Suction Hose, and Underwriters' Unlined Linen Hose.

"Fognozls"—

The ingenious device that makes a high-pressure hose line produce a smothering, fog-like blanket over stubborn flames. Supplied attached to Goodall fire hose.

Firemen's Boots—

Famous for safety, comfort and long wear. Made of tough black rubber, with slip-proof soles and outside and inside gum knee patch. Felt lined. Strong wood "ladder shanks" reinforce arches to ease the strain of long ladder stands. Wide guards at shank provide additional resistance to punctures. "Storm King" (¾) length.

Style 19 Coat—

The quality coat for fire-fighting service. Durable, dull-finish black rubber, with a smooth, tough surface that resists snagging. Light weight; comfortable; strap-and-buckle sleeves. 46" long.

Contact Our Nearest Branch or Main Office for Details of Goodall Fire-Fighting Products . . . "Engineered to Your Job".

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Factory — Trenton, N. J

Established 1870

lighting and air conditioning, hi walls, etc.

Blanking fronts of existing buildin for various reasons.

The Berlin Fire Brigade

(*Continued from page* 510)

rule, they are of the one door type a one story high. They have an appara floor, watch room, small bunk room a a room that doubles as a kitchen, s ting room and recreation room.

They have at least one piece of a paratus in service and there are usua one or more trailer pumps stored the for emergency use. Their turno clothes are the same as their pa brethren's and outside of the static cr there, no one is paid. All alarms i the stations are received by telepho usually from fire headquarters. Th do have an outside phone that alar could be sent over without goi through headquarters. They are und direct command of Chief Feierabe and to the military government fire o ficer in which section they are locate The apparatus is a sedan type ho wagon towing a 500-gallon trailer pum They carry 850 feet of Class C hose a 500 feet of Class B. The wagon is al equipped with door openers, self co tained oxygen masks, block and fal rope, etc. Two ladders are carried, o 24 foot extension and a small 12 fo ladder. Thus you can see that they a equipped and operate about the same their big brothers.

For warning equipment, all truck both in the regular and volunteers, u an electric bell and two blue warni lights. Soon to be restored are t sirens. Berlin is the only brigade Europe that has used sirens. The were suspended during the war for t obvious reason that they tended to confused with the air raid warnings.

This is an outline of the *new* Ber fire brigade.

Keeping Fires from Spreading

(*Continued from page* 513)

are able to make the fire preventi ordinance fully effective.

The institution of fire brigades, pro erly trained, is an important move large establishments, to keep fire loss down. Because these men are employe by the industry, and are available at a times for fire fighting, they are enable to get in operation quickly at a fi and, in the majority of cases, keep under control until the municipal d partment arrives.

Other Possibilities

Besides the precautions and the equi ment specified previously for controllin fires, the future may show the increase use of new developments in checkin fire spread.

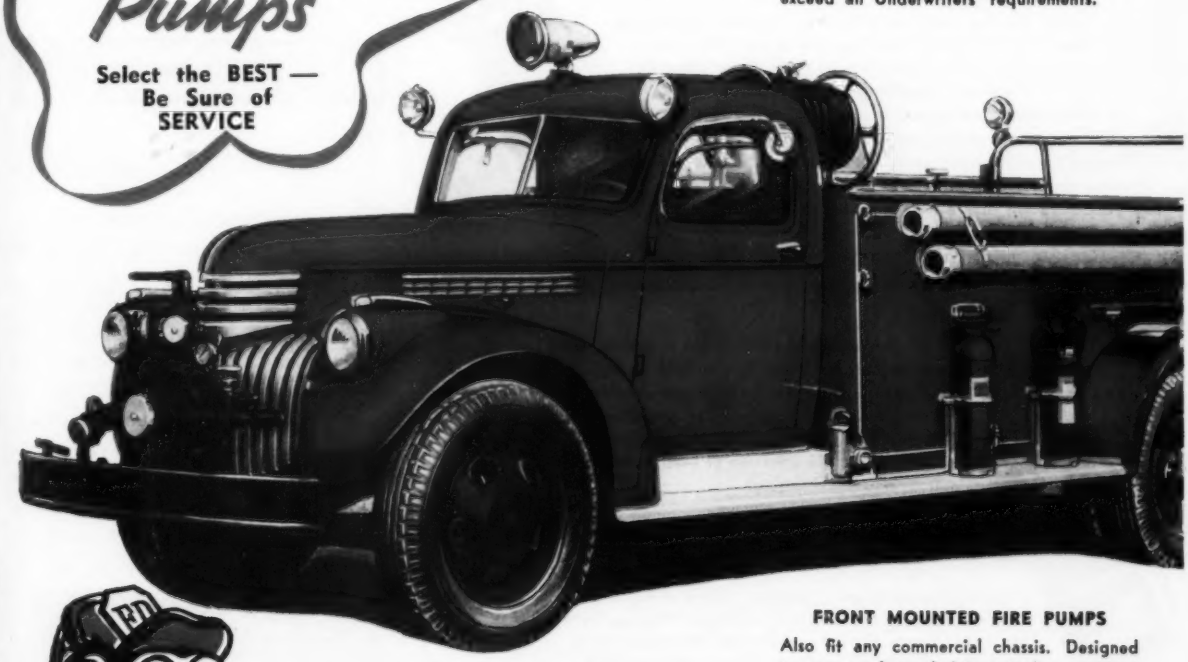
Among these may be mention treated wood, fire resistant paint, met lath, fire resistant plasterboard and fi resistant shingles.

Treated wood will stand high tempe atures without igniting. It will cha but will not carry fire. While treate wood is more costly than plain lumbe it can in many cases be used in pla of other fire resistant materials whi are on a par, or of higher price.

Fire resistant paints, because they a poor from the color effect standpoin are not usually suitable for use except concealed spaces or at points whe

MIDSHIP and FRONT MOUNTED
Pumps
Select the BEST — Be Sure of SERVICE

MIDSHIP MOUNTED FIRE PUMPS
Will fit any commercial chassis. Available in several sized models Built to meet and exceed all Underwriters' requirements.



FRONT MOUNTED FIRE PUMPS
Also fit any commercial chassis. Designed to save much needed hose body space and permit larger booster tanks. They are setting the standard for modern fire-fighting.

OF COURSE YOU WANT A BEAR FOR WORK

AMERICAN-MARSH PUMPS, INCORPORATED

AMERICAN-MARSH PUMPS

BATTLE CREEK, MICHIGAN

A Pyrene Vaporizing Liquid extinguisher located near every fire hazard—electric equipment, machines, diesel engines, flammable liquids of all kinds—catches the fire before it's too big to handle, and you've made a long step toward protecting your whole plant. Big fires are born little fires—quick action stops them, keeps them from spreading. The Pyrene Vaporizing Liquid extinguisher is a quick-action extinguisher, instant protection for all fires in incipiency, especially suited for electrical and flammable liquid risks. A non-conductor, it smothers fire with a thick cloud of oxygen-excluding gas, does not injure equipment.

For ordinary combustible materials, wood, paper and textiles, a Pyrene Water-Type extinguisher fills the requirement. Operated by a gas cartridge, it is standard for offices, buildings, plants and stores. For locations subject to freezing temperatures, Pyrene Anti-Freeze extinguishers are effective at —40° F. Neither type requires annual recharging.

Standardize on Pyrene Protection. Control of fire in all its phases has been Pyrene's business for almost 40 years. There are specific Pyrene Fire Extinguishers for different classes of fires. A Pyrene jobber will be glad to help you determine your fire hazards and advise best methods for protection from them.

If you have a special hazard, or plan expansion or doubt the effectiveness of your present system, consult your Pyrene jobber or let our engineers help you.

Pyrene

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Affiliated with the C-O-Two Fire Equipment Co.

color effect is unimportant. For example, in attics, in basements and other points where they are fairly concealed from view, they can be used and aid materially in resisting the spread of fire along combustible members.

Metal lath has been in the field for a number of years, and has proven very effective in lath and plaster construction for delaying the spread of fire.

Fire resistant plasterboard is as effective as ordinary plaster on metal lath, for it can be attached directly to supporting members and does not provide fuel for travel of fire.

The growth in use of fire resistant shingles had been rapid up to the time of the war, and their increased use is indicated in the future for protecting roofs of combustible structures from fire.

Conclusions

In conclusion, it should be again emphasized that industrial plants being prepared for occupancy during this period of curtailed labor shortage and shortage of material, should be provided with fire stops; openings should be covered with self closing doors; vertical openings should be closed in with fire resistant partitions; hazards should be segregated, where possible, by fire resistant partitions, and fire prevention ordinances and building codes should be conscientiously enforced by the city administration.

Controlling at their source is the only sure way of keeping fires small.

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of June, 1946.

MONTH ENDING JUNE 30, 1946

Battle Creek, Mich.—USO club, downtown section, destroyed.
Osoyoos, B. C.—Osoyoos sawmill destroyed.
Los Angeles, Cal.—Kirk Plastic Co. plt. destroyed.
Freeport, Me.—Clark Hotel and business block damaged.
Wyncote, Pa.—Dwelling owned by Sol M. Flock, destroyed.
Parkland, Wash.—Pacific Lutheran College gym destroyed.
Gardner, Mass.—Whse. at O'Hearn Mfg. Co. destroyed.
Temple, Tex.—R. J. Bigham Oil Co. damaged. Spark of static electricity.
Edmonton, Alta.—McCosham & Storage & Distributing Co. damaged.
Hamilton, Ont. — Hamilton Central Collegiate destroyed.
Los Angeles, Cal.—Foreman & Clark clothing store destroyed.
San Francisco, Cal.—Hotel, 142 Taylor Street, under reconstruction and cafe on ground floor.
Denver, Colo.—Machine and carpentry shops at Lowry Field destroyed.
Dubuque, Ia.—Canfield Hotel destroyed.
Leon, Ia.—Armour & Co. creamery and poultry plt. destroyed.
Worcester, Mass.—S. Freedman & Sons, Inc., plant, wool waste company, destroyed.
Milwaukee, Wis.—Fire swept a lumber yard and a mainline street car trestle in the Menomonie Valley, destroying nearly 4,000,000 board feet of lumber. The blaze raged through the 13-acre yard of the Hilty-Forster Lumber Co., destroying a box shop, planing mill, two whses., four lumber sheds and eighteen box cars.
Barnesville, Ga.—Bldgs. occupied by Harry Weinstein's hobby shop; florist shop; Florences grocery; Mary Meeks' dress shop; and Tri-Country Furniture Co., damaged.
Bath, Me.—Fire destroyed a Kennebec River box factory and a planing mill.
Cody, Neb.—J. B. Stotts Mercantile Co., Yancy Bar, Post Office, Public Hall and apartments destroyed.
Wildwood, N. J.—Latimer's Bakery destroyed.
Conneaut Lake, Pa.—Temple of Music auditorium destroyed.
Spring City, Pa.—Barn at Pennhurst State Col-

Scott Air-Pak

... delivers FRESH, Certified Pure AIR IN EVERY BREATHING HAZARD!

The Scott Air-Pak represents the first real improvement in self-contained breathing apparatus in many years, and has received the unstinting praise of all who have used it. Completely safe, thoroughly dependable, adequately tested, it delivers to the user, thru a demand-type regulator, refreshing *Certified Pure* breathing air—not oxygen—for every breathing hazard. The air supply is carried to the hazard under compression in a strong, lightweight cylinder. No chemicals or canisters. No rebreathing of stale air. The mechanical soundness of the Air-Pak principle has been proven beyond the shadow of a doubt by hundreds of thousands of our Air Force personnel who have had to depend on their Scott-built equipment for life itself during all high altitude work. Outstanding features of the Scott Air-Pak are these:— Ready instantly—no make-ready time; clear, full vision—no lens fogging; complete freedom of motion; lightweight yet quality-built throughout; comfortable working equipment—not just emergency apparatus; quick-connect air supply conserver — interchangeable plug-in or threaded type; luminous air gauge and . . . can even be used with safety under water.

TWO COMPACT RELIABLE MODELS — Back and sling type units embody the same important safety and construction features.

EXTENSION HOSE NOW AVAILABLE —Allows entrance thru small openings. Larger cylinder extends working life. No manually operated pump.

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SCOTT AVIATION CORPORATION, *Safety Equipment Division,* Lancaster, New York.

Gentlemen: We desire to take advantage of your offer to demonstrate the SCOTT AIR-PAK at no obligation to us. We are interested in your AIR-PAK for:

(1) Emergency Use ..... (2) Working Equipment .....

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SCOTT AVIATION CORP., LANCASTER, N. Y.

lege for Feeble Minded and Epileptic Boys and Girls destroyed.

Cookeville, Tenn.—Tennessee Handle Mill plt. destroyed. Sparks from emery wheel.

Lubbock, Tex.—Dept. Store's home decoration dept. and cleaning and pressing firm of Russell Hardin destroyed. Defective electric circuit.

Ashland, Ore.—Ashland Lumber Mills, decked lumber, destroyed. Incendiary.

Coudersport, Pa.—G. L. F. feed mill, a farmers' cooperative enterprise, Potter County community, destroyed.

St. Catherines, Ont.—Whse. of Welland Vale Mfg. Co. damaged.

Preston, Md.—Fowling Creek Grist mill, Harmony, five miles north, destroyed. Overheated fan.

Rockville, Minn.—Cold Spring Granite Co. plt. damaged.

Moline, Ohio—Barn and adj. bldgs. at Rudolph Dairy Farm destroyed.

Ohio City, Ohio—Grain elevator, feed mill and office bldg. at Holland Pioneer Feed Mills, destroyed.

San Antonio, Tex.—Whse. of Insul-Wool Insulation Co., Austin Highway, north, destroyed.

Colville, Wash.—Bob's Cafe, Colville Auto Parts damaged.

San Francisco, Cal.—Forbidden City, night club, damaged.

Griffen, Ga.—Big Star Store and Buick Garage destroyed.

St. Paul, Minn.—Lumber shed at Villaume Box & Lumber Co. damaged.

St. Louis, Mo.—Trailmobile Co. damaged.

Milwaukee, Wis.—Dry color dept. of Pittsburgh Plate Glass Co. damaged.

Flora, Ind.—Millroom of V. D. Rider Furniture Factory destroyed.

Molton, Kans.—Three musiness-apt, bldgs. downtown section, destroyed. Bldgs. occupied by bakery-restaurant, feed store, cleaning shop and apts.

Lancaster, Pa.—Two business-apt. bldgs. destroyed.

Seattle, Wash.—Goodrich Tire & Rubber Co.'s whse. destroyed.

Fruitbale, B. C.—Simmons garage, pool hall, fountain, beauty parlor destroyed.

Celina, Ohio—Mersman Bros. Corp., label manufacturer, damaged.

Hereford, Tex.—Two wheat elevators of Freaser Milling Co. destroyed.

Nichols, Wis.—Dairy plt. of Consolidated Badger Cooperative destroyed.

New Richmond, Wis.—Three bldgs. of Doughboy Industries destroyed. Lightning.

Whiting, Ind.—Barrel house at Standard Oil Co. plt. damaged.

Toronto, Ont.—Reliance grain elevator and annex and Saskatchewan Wheat Pool Elevator damaged; also Co-operative Coal Co. shed destroyed.

Luana, Ia.—Hoth Haymower Co. mfg. plt. destroyed. Lightning.

Spokane, Wash.—Grossman Paint Mfg. Co., destroyed.

Benton Harbor, Mich.—Whse. of Berrien County Package Co., Millburg, ten miles east, destroyed. Lightning.

Portland, Ore.—Whse. of Fox Furniture Co. destroyed. Refuse.

Hereford, Tex.—Two elevators of Fraser Mill Co. destroyed.

Putney, Vt.—Plants of Putney Paper Co. and Greenview Tissue Co. destroyed.

Halifax, N. S.—Science bldg. of Nova Scotia Agricultural College, Truro, damaged.

Long Beach, Cal.—Bldg. occupied by M. E. Krieger Shoe Co. and C. B. Liggett Furniture Co., destroyed.

Princeton, N. J.—Dwelling of R. C. Maxwell destroyed.

Hobbs, N. M.—Furr Food Co. store, Boynton Printing Co. and Boynton Office Supply Co. and Grill Cafe, destroyed.

Wichita Falls, Tex.—Moro Hotel damaged.

Fortierville, Que.—School, bakery, three dwellings, destroyed.

Toronto, Ont.—Parish Church, door and window factory, three stores, two dwellings, destroyed.

Parsons, Kans.—Parsons Poultry & Egg Co. destroyed.

Portland, Ore.—Union Pacific Whse. destroyed.

Wapello, Ia.—High school bldg. destroyed. Boiler explosion.

Elgin, Ill.—W. R. Meadows, Inc., plt.; L. & B. Cold Storage plt.; Elgin Coal & Oil Co.; Reinert Oil Co. and Jefferson Ice Co. damaged. Naphtha and asphalt boiled over.

Clice, Ia.—Dairy barn at State prison farm destroyed.

Wasco, Ore.—P. G. O'Meara, hardware and implement company, damaged.

Somerville, Mass.—Fire and explosions destroyed a three-story John Whitney metal salvaging plant and damaged six tenement houses. A storage yard, office bldg. and shed of the A. Chapper barrel plant were also damaged.

Staten Island, N. Y.—St. George ferry house and four slips destroyed. Sparks from a short circuit on a Staten Island Rapid Transit electric train started the fire.

New Haven, Conn.—Whse. occupied by H. M. Tower Corp. destroyed.

INDIAN FIRE PUMPS

ARE THE FASTEST WAY TO STOP INSIDE AND OUTDOOR FIRES!

"Finest Portable Extinguishers Ever Used"

Here is a letter from a Fire Chief which expresses in a few words how much he thinks of his INDIAN FIRE PUMPS:

D. B. Smith & Co.
Utica, N. Y.

The INDIAN FIRE PUMPS we have on our trucks are the finest portable extinguishers I have ever used. They are the quickest, most economical, means of extinguishing grass, brush, rubbish, awning, roof and other fires.

Very truly yours,
FRANK MITCHELL, Chief, Hudson Fire Dept.

ORDER YOUR INDIAN FIRE PUMPS NOW!

INDIAN FIRE PUMPS Are Replacing Soda-Acid Type Extinguishers

In many rural and big city fire departments *INDIAN FIRE PUMPS* are replacing soda acid extinguishers. INDIANS, using only clear water, do no damage to house furnishings and make no mess. The 5 gal. rust proof tank carries slung on the back leaving arms free for climbing ladders, etc. Easy pumping throws 40 to 50 ft. pressure stream or nozzle adjusts to a spray.

Catalog on request

D. B. SMITH & CO., 406 Main Street, Utica, N. Y.

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HERCULES EQUIPMENT & RUBBER CO.
435 Brannan St., San Francisco, Cal.
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2700 4th Ave. So., Seattle, Wash.
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FRED E. BARNETT CO.
600 Spring St., Klamath Falls, Ore.
FRED E. BARNETT CO.
Broadway & Harris St., Eureka, Cal.
ROY G. DAVIS CO.
617 E. 3rd St., Los Angeles, Cal.

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BINGHAM & HOBBS EQUIP. CO. LTD.
395 W. 5th Ave., Vancouver, B. C.
DUKE EQUIPMENT CO.
297 Duke St., Montreal

Echoes of the War

By Roi B. Woolley

G.I. Dies in Camp Kilmer Fire

Staff Sergeant John C. Todd of Denver was asphyxiated and four others were injured—one critically, with a broken back—in a fire that started in a non-commissioned officers' quarters at 4:30 in the morning of June 8. Three of the injured received hurts in jumping from the second floor, where forty men were asleep in separate rooms in the two-story wooden structure. The dead man occupied a room on the first floor.

The fire, of undetermined origin, was discovered by military police and fought by the Camp's fire brigade. The loss has not been revealed.

* * *

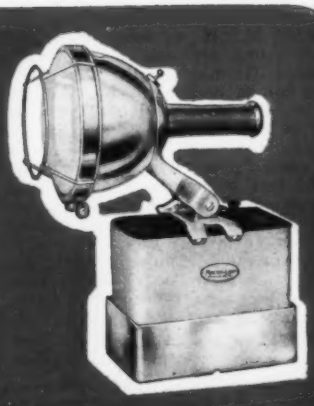
Hot Off the News Ticker

Sabotage is suspected as the cause of a large fire aboard a United States vessel loading cotton at Havre, France. Military police found two cases of liquid explosive in a hold where cotton was stored. This was the third fire at Havre cotton docks in a fortnight. . . . Just to remind us how small the world is growing, a new, one-day round-trip coast-to-coast speed mark was set up when three jet-propelled P-80 fighter planes made the round-trip in 12 hours, 22 minutes—March Field, Calif., to Washington and return. . . . Firemen of the not too distant future will be fighting fires caused by supersonic, man-carrying planes that will fly at

WS—For the Chief—Type WS Highest Quality 6" diameter Rechargeable Searchlight and Floodlight. Beams A-Mile range, patented handle (Beam tips upward at will without "cocking" arm), corrosion proof, feather-weight, super capacity battery, height 13", weight only 11 lbs. Finest made.

MINUTEMAN AUTOMATIC MASTER-FLOODLIGHTS Theatres, Auditoriums, Restaurants, Roadhouses, Factories, Stores, Loading Docks, Lodges and key position rooms. MEET STATE LAWS.

SAVE LIFE AND PROPERTY where continuous light *must* be maintained. When usual lighting fails Minutemen instantly illuminate. Special rechargeable battery with automatic charger.

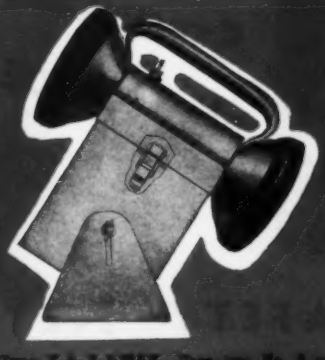


Type F5—Uses drycell Bantam type battery. Powerful as the WS, 5" diameter. *Type Super-6* is like F5 but has rechargeable battery in box like WS. Rechargeable batteries save money if lights are in frequent use.

DRY AND RECHARGEABLE TYPES

"MASTER-LIGHTS"

OSCILLATING BEAM WIG-WAG READ-HEAD—8" and 6" diameter sizes. Put one on every emergency car or truck. The Powerful red light Wig-Wags its oscillating warning far ahead and CLEARS YOUR SIDE OF STREET, TOO. Makes safer, faster, quieter runs.



Type T & T 2-WAY. Uses two No. 2 or telephone type dry cells. Sturdy rust-proof steel case. Focusing white 1/3-mile hand searchlight or set in street for red warning.

FOR THE MEN-TYPE G-23 Watchmen and Firemen. (Saves up to $75 in dry batteries yearly.) Lightest made (78 oz.). Longest burning and brightest. Insert spare spill and corrosion proof battery with automatic filling control in 10 seconds. Third-mile range.

USED BY FIRE DEPARTMENTS EVERYWHERE

Your 1946 replacements are not complete without MASTER-LIGHTS. Write for catalogs and prices or order thru Fire Equipment Houses.

"MASTER LIGHT MAKERS"

CARPENTER MFG. CO., 200 Master-Light Bldg., Boston 45, Mass.

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

speeds of 1,500 miles per hour or greater. Scientists say planes that will fly at 4,500 M.P.H., or seven times the speed of sound are possible. . . . An unexploded German bomb, containing nearly a ton of high explosive, was removed in June from the Hull-Doncaster railway in London, Eng., where it had lain embedded for five years while trains crawled past. The bomb was defused 32 feet below the ground. . . . Flames swept through the boiler room of the 15,900-ton S. S. Panamanian, one of the world's largest cargo vessels in Sydney, Australia. Cause of fire—"unknown." . . . A Navy Lockheed Neptune flew from Brooklyn, to Burbank, Calif., in 9 hours, 23 minutes, breaking the east to west records. It can fly nonstop from New York to Pearl Harbor. . . . Tiny Tim, a new Army rocket, is said to be the most deadly missle ever fired from an airplane. Few targets can withstand a direct hit from the rocket, traveling at 1,500 miles an hour. . . . In New Rochelle, N. Y., the superintendent of the city's incinerator said that explosions of cartridges and larger shells have caused considerable damage to the furnace and endangered the lives of a dozen workers. Recently after an explosion, two 20-MM anti-aircraft shell casing were found in the pit of the furnace. He appealed to former service men to turn over their relics to police, not dump them.

* * *

Wanna Buy an Air Raid Siren?

New York City, which is now removing 493 air sirens from the tops of buildings in the five boroughs where they had been placed during the war years, is offering the howlers at "bargain prices" after canceling bids on the sirens received last September.

Leo Flood, city salvage engineer, announced that 329 five h.p. A.C. sirens are offered at $125 each and 164 two h.p. squawlers either A.C. or D.C. may be had for $95 each. That's FOB "as is," said, with crating extra.

Two of the big super-duper sirens have been sold to rural fire departments on Long Island, it is reported.

* * *

Five-Year-Old Bomb Explodes

An unexploded 500-pound bomb dropped on Coventry, England, five years ago was exploded May 17 after a disposal squad, aware that it might detonate at any moment, rushed it through crowded streets.

The bomb, one of four unexploded ones in the center of Coventry, began to tick soon after it had been brought up from a twenty-three foot deep shaft. Escorted by a loud-speaker van, shouting warnings to pedestrians, a truck loaded with the ticking bomb sped to an open space where it was immediately detonated. The blast caused considerable damage to property in the district including many blitz-damaged homes repaired only recently.

* * *

Worst Mining Blast in History

The world's worst mining disaster—an underground explosion which occurred four years ago and snuffed out 1,549 Chinese and Korean lives in the Honkeiko Colliery in Manchuria—was only recently reported by Allied headquarters.

The accident occurred April 26, 1942 under the Japanese occupation and was kept secret by the military from even the Japanese Government for a month. The blast was set off by a short circuit which ignited methane gas. That exploded an accumulation of coal dust in tunnels for a distance of more than two kilometers (about one and one quarter miles). Most of the deaths were caused by carbon-monoxide poisoning. The deaths of several hundreds were needless, it is said, because a mine official refused to turn on the ventilating fans for fear of spreading the fire. The only comparable mine disaster was at Pas de Calais, France in 1906, when 1,000 French miners were killed.

• SAFEST STRONGEST NET MADE •

SUPERIOR SAFETY NET

Backed by years of experience and manufactured by craftsmen skilled in the art, using only the finest of dependable materials.

Check These Specifications and Compare

- ☐ The patented woven mesh net is made of pure 4-strand hemp rope.
- ☐ The frame is made of Chrome Molybdenum steel.
- ☐ The net is equipped with 32 expansion steel spring shock absorbers with triple safety stop links.
- ☐ Made to fold either in halves or quarters, the Superior Nets are constructed so as to be stronger, more durable, and most dependable with nothing to get out of order.

SUPERIOR FIRE EQUIPMENT CORP.

235 EAST 42nd STREET • NEW YORK 17, N. Y.

Annual Reports Received

Everett, Wash.

Annual reports of the fire service contain definite and emphatic recommendations for improvements in the respective fire departments. Fire chiefs are "going on record" with their recommendations for needed improvements in their services. Witness the excellent report of the Everett Fire Department. Chief F. F. Schroeder who utilizes the yearly accounting of stewardship to "sell" his department and its needs to his city's officials and taxpayers. This report points out, among other things:

"The problem that is facing us and which can be solved, to a great extent by a little effort on the part of each and everyone of us . . . is to stop . . . the fire waste. . . . On the average 10,000 lives are lost each year because of fires. 7,000 of these lives are lost in fires in

THE MAN WHO CHEATED DEATH

"Manufactured Under U. S. Patents and Applications"

Who is he? You'd scarcely recognize his name, but he's a fire chief with a heart, a mind and a determination to save lives.

He knows that thousands die each year because they do not hear warnings or instructions; that, unaided, the human voice is too weak to rise above the manifold noises at a fire.

Now, with the Guided Radio Portable Megaphone, his voice—magnified 2500 times—rises powerful and clear; all are alerted instantly . . . warned against tottering walls and sagging roofs. He has cheated death.

* * *

Chief, let Guided Radio Portable Electric Megaphones serve you and save lives. They're light in weight; equipped with internal storage batteries and charger.

Write for Illustrated Circular 11

Distributed by GraybaR ELECTRIC COMPANY

GUIDED RADIO
ELECTRIC MEGAPHONE

GUIDED RADIO CORPORATION, 161 6th Avenue, New York 13, N. Y.

homes, and two-thirds of those lost in homes are children. $248,547,142.00 burnt up in one year. Over $2.00 for every man, woman and child in the United States. These things should be of concern to us when we realize that most of this loss comes from carelessness. Where does the Everett Fire Department come into the picture? Our loss in 1945 was $31,586.00 and two lives. Two-thirds of this loss was in homes. . . . The other one-third was in places of business and mills with two lives being lost in these fires. To lessen this waste is a challenge to the people of Everett."

Chief Schroeder then suggests how to combat this waste:

MANPOWER: "it is out of reason to expect efficiency . . . from a three-man engine company and, in case of sickness or accident, only two men. It takes manpower to put out fires. . . . We do not have sufficient manpower to properly man the equipment.

APPARATUS: The life of a piece of apparatus is fifteen years and the cost to keep it running after that time is too high. As an example, the price for a repair part for our pumper bought in 1927 is twice that of the same part for our pumper purchased in 1942. Another reason for replacing old equipment is the length of time it takes to make repairs. For our equipment purchased in 1942, it is a matter of hours before new parts can be supplied but for old equipment it takes days. This is a matter of great concern.

FIRE STATIONS: The City . . . is in need of additional fire stations. Under present conditions our main fire fighting strength must respond to all alarms in the residential districts. This means that when they are out to one of these calls it leaves the business district, industrial district, schools and hospitals with very little to call on in case of fire.

Chief Schroeder then outlines the need of greater fire protection in the South residential district and says:

"A fire station in the south would give our people confidence in us and a feeling that their city is doing all it can to give them the protection they need."

The chief used examples, taken from the records, to illustrate his requests. He said:

"The dire need for additional stations should have been brought home to everyone when the retail shed at the Eclipse mill burnt with a loss of $75,000.00. . . . When the fire started, 75% of our fire fighting strength was out to a fire in a residential district. By the time they could be notified of the Eclipse fire and respond . . . the entire shed was ablaze.

"Another thing to consider is that our main fire fighting strength must answer alarms as far as 2 miles from the station. . . . The solution of all of this is the immediate construction of additional fire stations. . . . We have the same number of fire stations we had 20 years ago. We have not kept our fire department advancing with the city."

The report then discusses the fire and police signal systems, pointing out the vital need of improvements. It says:

"The fire alarm equipment is now housed in quarters which obviously are too small, extremely inadequate, installed on a wooden joist floor, over the fire department repair shop . . . useable space in the alarm room has long since been occupied. . . . It is impossible to bring all the fire alarm circuits into the alarm room in the approved manner. Some of the late installations have actually added to the hazards of the alarm room."

The report then proceeds with the statistical accounting of the year 1945, its losses, fire operations, financial evaluation, and so on. One brief paragraph was significant. This covered radio, and said:

TIME SAVED BY RADIO.—"All of our trucks are equipped with two-way radio. After a company is through at a fire and if they have their booster tank full and all their hose ready for the next call, they report in service by radio on their way back to the fire station. During 1945 our companies were in service 51 hours and 49 minutes because of radio!"

The Everett report stresses the fire prevention operations, inspections, removal of dangerous hazards, drills and schoolwork, and it includes details of rescue work, and other duties performed by the department.

* * *

Springfield, Ohio

Annual Report of the Fire Department, City of Springfield, Ohio, 1945, Chief Grover L. Frock. Chief Frock's report contains some interesting items,

Something New!!

QUADWAY

PAT. DATE 11/27/45

FREE SWIVELING APPLICATOR

PAT. APPLIED FOR

This unique applicator attachment makes the all-purpose QUAD-WAY Nozzle even more effective and useful. The applicator attachment is used for confined areas and tank liquid fires. It is easily attached to the standard QUAD-WAY and quickly detached for conventional use.

The QUAD-WAY is well known for its four outstanding features. The STRAIGHT SOLID stream and water curtain combination enables the operator to simultaneously protect himself from extensive heat, smoke and poisonous fumes and continue to fight the fire with an effective fire stream. When fog-mist only is required, the solid stream is shut off and the ribbed forward section adjusted to obtain the desired vapor pattern. Throughout the entire range, ***the fog-mist pattern is dense and solid,*** not a hollow cone. The fog-mist and solid straight stream each have separate waterways and shut-off valves. Neither impairs the operation of the other, and consequently it is possible to have either fog or straight stream separately, or a combination of both together. With the new applicator attachment, the QUAD-WAY is truly an outstanding piece of fire fighting equipment.

Why not write today for a demonstration of this nozzle in your own department?

Write for Descriptive Folder

THE WOOSTER BRASS COMPANY

WOOSTER, OHIO

The "ON WATCH" FIRE ALARM

THE FIRE CHIEFS ANSWER TO DELAYED ALARMS

THIS new invention of Fire Chief O'Leary known as the ON WATCH FIRE ALARM SYSTEM is the newest weapon against our public enemy No. 1—FIRE.

When a fire takes place in an area covered by a thermostat or detector the horn sounds immediately and can be heard for a great distance. The lights in the alarm box keep flashing.

The reading matter on the alarm box states plainly the words, "FIRE, CALL FIRE DEPARTMENT." Because of this, the alarm cannot be confused with the ordinary burglar alarms. The alarm is both visible and audible.

The audible part of the alarm should without doubt arouse the average sleeper or neighbors which might prevent persons being asphyxiated and later burned to death . . . IT PREVENTS A FIRE BURNING FOR HOURS BEFORE BEING DETECTED.

ON THE JOB NIGHT AND DAY

The above diagram shows that any number of thermostats or detectors can be connected to the one alarm system.

One of Chief O'Leary's products

DANGER POINTS THAT SHOULD BE COVERED:

Oil burners, furnace rooms, attics, storerooms, cellars, garages, silos, barns, warehouses, offices, stores, lofts or country houses which have been closed for the season. All this can be done if they have electric current. The installation of this alarm is simple, any electrician can do the work at a low nominal cost.

O'LEARY'S FIRE PREVENTION CO.,
126 EAST 44th STREET · NEW YORK, N. Y.

aside from its excellent statistical presentations. It is disclosed that a smoke ejector was added to the equipment at No. 1 fire station in August of 1944, and that it was used a total of twenty-six (26) times in 1945. Although there were seven inhalator and rescue calls where persons died from heart attacks, carbon monoxide or causes classed as "unknown", thirteen persons were revived by the inhalator squad.

Another feature of Chief Frock's report is a seniority tabulation of all members of the fire department. The report also includes an account of activities of the Springfield Industrial Fire Chief's Association which was originated and sponsored by the Springfield Fire Department.

New Jersey State Hospital

Annual Report of the Managers and Officers of the New Jersey State Hospital, Greystone Park, N. J. In this report is included full details of the work of the efficient fire department under command of Chief Charles H. Acker.

* * *

Waterloo, Iowa

The Forty-Second Annual Report of the Waterloo, Ia., Fire Department, Chief Ray Tiller, shows losses for the 1945-46 period amounted to $93,819.75, the highest in three years.

Among the interesting items of the report are those covering man-hours of work by the department personnel. In addition to fire-fighting operations, a total of 482½ man-hours were worked by firemen evacuating families and pumping out basements during flood conditions, while 242½ man-hours were devoted to searching the river for bodies of drowned victims and rescuing persons from the river.

The total fire department expenditures for the period was $144,064.78. In his recommendations, Chief Tiller requests an increased tax levy to finance a new headquarters station, and fire alarm headquarters, and a modern fire department shop and drill facilities. Also two additional single company stations; an additional 750 GPM pumper; new fire alarm cable to replace 20-year-old cable; amendment of the parking ordinance to prohibit parking on both sides of 30-foot streets; elimination of railroad grade crossings, which continually delay firemen; adoption of a modern fire prevention ordinance, to prohibit the use of wooden shingles and operation of trucks carrying explosives through the streets, and to regulate the transportation of gasoline and oil trucks of semi-trailer type on the city's streets.

* * *

Beverly Hills, Calif.

According to the Twenty-First Annual Report of the Beverley Hills, Calif., Fire Department, Chief Lloyd B. Canfield, losses for 1945 were lower than for any year since 1942, although property values had increased considerably.

Among the interesting facts in this businesslike report are the statements that smoke ejectors were used at 15 fires; "air-smoke masks and machines" at 4 fires; lives saved by use of inhalators operated by firemen (ambulance activities) 19, and lives that could not be saved, 22.

A feature of the report is the data on fire prevention operations and on "public relations."

* * *

Ontario Fire Marshal's Report

The report of the Ontario Fire Marshal for January, February and March, 1946, showed 44 persons killed and 72 injured in fires, with the number of fires and losses lower than for the corresponding three months of 1945.

* * *

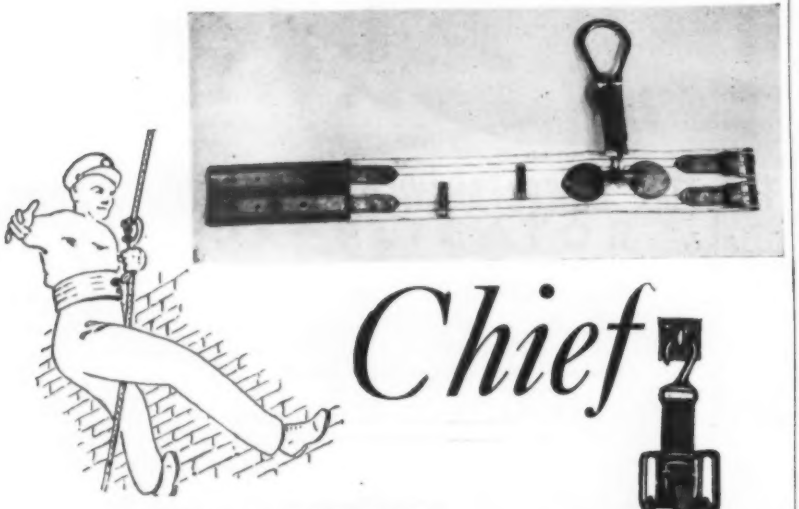
New Haven, Conn.

A report by the Department of Fire Service, City of New Haven, Conn., entitled "Five Years of Progress" graphically describes the improvements made in the city's fire service, from January 1941, when Chief Paul P. Heinz assumed charge of the department, to December 31, 1945.

Faced with the handicap of shortage of manpower, outmoded fire fighting equipment, old fire stations, lack of training facilities and other obstacles, the department has carried out a carefully planned program, with immediate and long-range objectives which, in five years, has brought it to an enviable position in the forefront of the nation's fire departments.

The first step was a survey of the weaknesses and needs of the department. Then, with a civic administration that supported Fire Chief Paul Heinz almost to the letter, the improvements were inaugurated.

These included remodeling of all fire stations—in some cases rebuilding; installation of overhead doors, watch desks, better lighting and other facili-



Chief

The NEW
MORRISSEY HOOK
is really NEW

We have made a complete and important change in the BRAKE. This brake base is *grooved* to fit a ¾" rope, the hook is 1/7" *longer* which means the rope and ring are free from pressure. The rope cannot be forced out the side of the Hand Brake—THIS IMPROVEMENT MEANS A *POSITIVE BRAKE.*

Dealers: Remember the Safety Glide (a portable fire escape). Unfortunately this was not available for use in Dubuque. Immediate delivery anywhere.

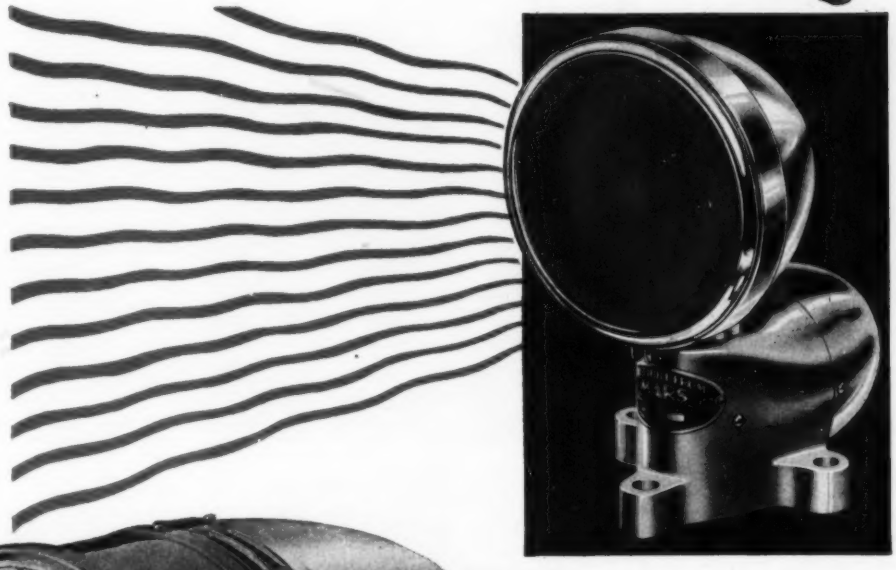
Write right now to—

MORRISSEY MANUFACTURING CO.
AUBURN Box 143 NEW YORK

Protect the Lives of Your Men and Your Valuable Apparatus with MARS

The Light that Commands Instant Attention

Oscillating in the form of a horizontal figure 8, it throws a red beam of light up and down and from curb to curb. Standard equipment in over 300 fire departments from coast to coast. The light from Mars is sturdily constructed and fully guaranteed for five years; a guarantee that has never failed and never will. Insist on MARS when you order new equipment.



MARS combination 6 inch siren and 6 inch Flashing Red Light in one compact unit. The siren and flashing light can be used separately or together. Foot switch supplied for the siren and dash switch for the light.

The most popular siren for chief's cars and apparatus. Many thousands in use by large and small fire departments. Balanced rotors, light weight die-cast throughtout — chrome plated. Two sizes — 4½" and 6 .

IMMEDIATE DELIVERY

For prices and complete information write to

MARS SIGNAL LIGHT CO., 5737 W. DIVISION ST., CHICAGO, ILL.

It's MARS from Coast to Coast

ties to provide better living conditions for the men; substitution of more modern fire-fighting apparel (head protection and coats); locating fire alarm signal boxes on pedestals instead of telephone poles; addition of 11 new pieces of streamlined apparatus; building of special apparatus for fighting large scale fires (including turret trucks created out of old hose-wagons); improvements in communication facilities, including installation of teletype machines; new radio short-wave equipment installed on six pumpers and all chief officers' cars and a new radio "locator" system installed at fire alarm headquarters; institution of a technical training program in a new training grounds.

The fire department budget for 1945 amounted to $909,494.80. The fire losses amounted to approximately $546,000, a decrease of $200,000 as compared with losses of 1944. The report calls attention to the high replacement cost, said to have increased 46% since 1941 as one reason for the high loss figures. The department responded to 2,144 alarms during the year, of which 152 were false.

* * *

Sacramento Fire Department Report

The Report for the Year 1945, covering the operations of the Sacramento Fire Department, Chief Terence Mulligan, like its predecessors, contains a wealth of factual data. The city experienced a sharp increase in the number of building fires during the year but the per capita loss by fire in 1945 was lower than for the year previous. The city has 9 engine companies, 3 ladder companies and 1 rescue squad. For years the Sacramento fire reports have had a printed cover illustrating one of the city's outstanding fires.

* * *

1945 F.I.A. Report

The 1945 Annual Report of the Factory Insurance Association covers the activities of underwriting, engineering and inspection, information and recounts the war record of the Association. F.I.A. publishes "The Sentinel," a publication devoted to fire prevention and control.

* * *

Milwaukee Fire Department Report

The Report of the Milwaukee Fire Department for the year 1945 is a business-like document of 32 pages and cover. It chronicles the "greatest number of alarms and fires to occur in the history of the City of Milwaukee" with a per capita loss estimated at $2.31 (based on a population of 620,000). Only in response to out-of-town calls was there a decrease. Considerable space is devoted in the report to the Bureau of Fire Prevention, and the Bureau of Instruction and Training.

* * *

Endicott, N. Y., Fire Department Report

The Fourth Annual Report of the Endicott, N. Y., Fire Department, Chief Edward J. Hart, is nicely compiled and printed; it contains a number of interesting features besides the customary fire department cost and loss data. One is a statistical report on each piece of apparatus showing the number of alarms responded to; test and practice runs; time of service at fires; miles traveled to and from fires; cost of maintenance, gasoline, oil, etc. Another is the listing of radio calls, handled by the fire department's own control through the police department transmitter. These calls totaled 1.214. Another is a complete breakdown of the fire department budget with comparative annual statistical data, and still other details are succinct recommendations for improving the department, including: (1) Technical Training Grounds; (2) Increase in Personnel; (3) New Automotive Fire Equipment; (4) Expansion of Fire Prevention Bureau; (5) Organize Fire Prevention Program in Public Schools; (6) Organize Junior Fire Department, and (7) Improve Communication System.

* * *

Sydney, Australia, Reports—

There was a decrease in the number of alarms of fire in Sydney, Australia, and suburbs last year from 7994 in 1944 to 5870 in 1945. "Down Under" they suffer from false alarms no less than does the fire service in this country. It is said 1668 of the 5870 alarms were "false."

According to correspondent Joseph Gunner of Sydney, Mr. W. H. Beare, Chief Officer of NSW Fire Brigades, believes the decrease may have been due to "numerous exhortations to the public to be careful of fire." The largest fire of 1945 was on March 30, the wool scouring establishment of F. W. Hughes Pty. Ltd. Damage was estimated at $500,000.

* * *

Seattle's Losses Low

With a fire loss nearly 50 per cent lower than the national per capita loss for the same period, Seattle, Wash.,

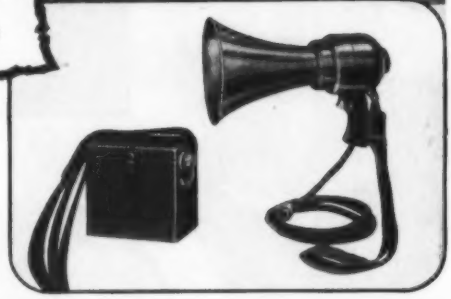
Super-Powered Portable
ELECTRIC MEGAPHONE

Saves Lives!
Controls Panic!
Directs Crowds!

Tool for Firefighters

A portable but powerful loud-speaker should be standard equipment for every fire department. It could assist the officer in charge in directing the efforts of his men. It could assist the police in controlling spectators. It might save many lives by enabling firemen and police to communicate with and to coach persons trapped in burning buildings.

from CHICAGO DAILY NEWS
Friday, June 7, 1946



Amplifies the Human Voice
PROJECTS
CLEAR SPEECH
UP TO ½ MILE

Indispensable as standard equipment for fighting fires and directing orderly dispersal of crowds. Fire chiefs can direct operations of men on ladders or roofs, warn them of impending dangers, speak to and advise people who through lack of direction are lost or trapped. Beams the voice directly to the desired area.

Completely portable! Carries its own power! No wiring, no stringing of speakers, no headphones. Ready for instant use in emergencies. Just attach cable, press trigger switch . . . and normal speech voice is projected clearly and distinctly to a distance of one-half mile and more. Weighs only 11 pounds. Operates efficiently rain or shine. Sturdily constructed. Simple to operate. Fire departments will find this Portable Electric Megaphone a valuable addition to their fire-fighting equipment. Write for complete details, NOW!

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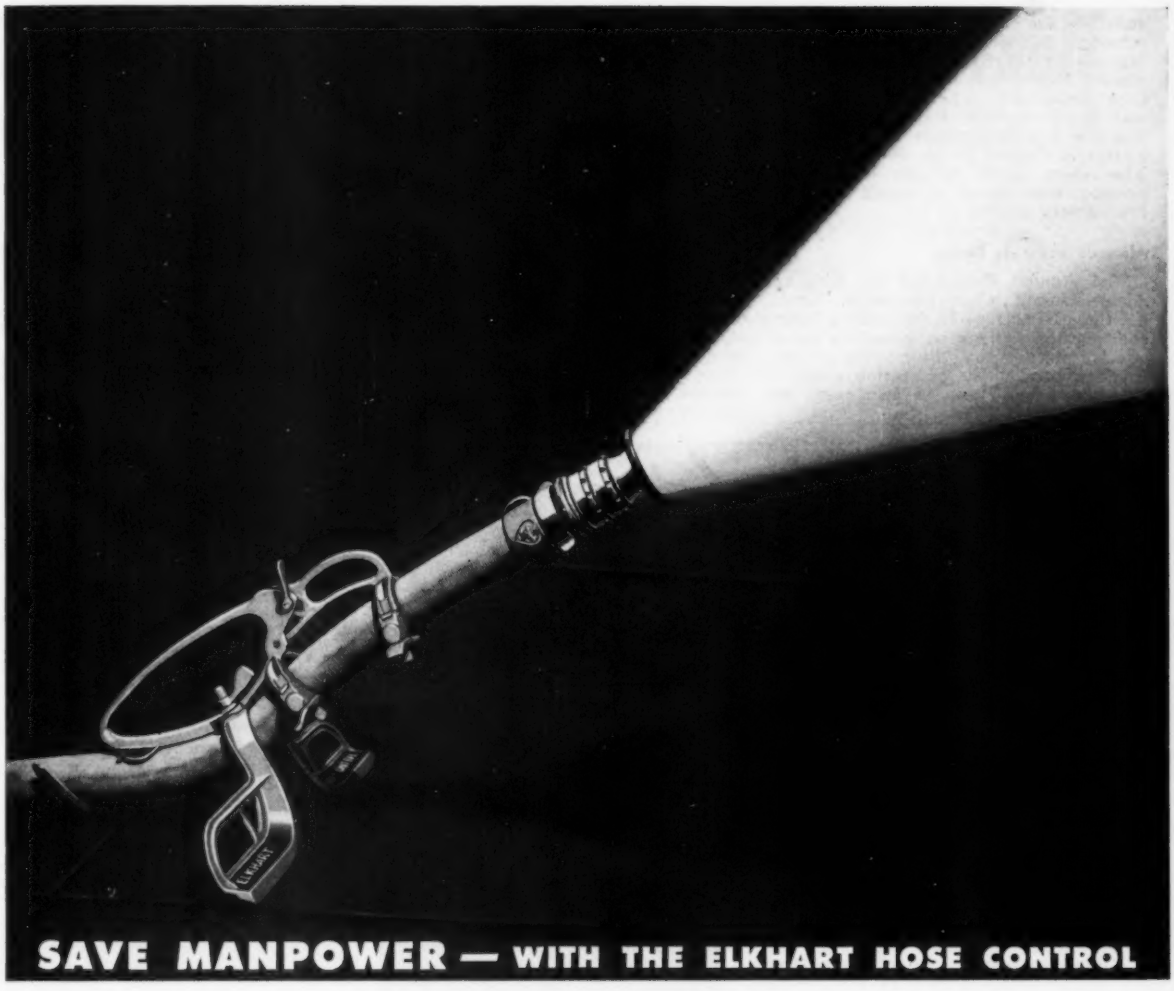


SAVE MANPOWER — WITH THE ELKHART HOSE CONTROL

HERE'S a revolutionary piece of equipment that will double your department's efficiency, and protect your men from excessive strain and exhaustion. One man can carry the ELKHART HOSE CONTROL, put it on a charged line and operate the nozzle with speed and safety. Even more than that—

It will stand alone—on ice, snow, roofs, gravel or concrete—without any back-lash.

It takes the place of a monitor nozzle.

It releases manpower for other duties.

It's an excellent carrying device on a moving hose line—three men can move forward, with a charged line, open under pressure. With hose line attached and nozzle closed, one man can easily move it to another position.

It's one of the greatest fire-fighting tools ever devised—of particular value to undermanned departments.

* * * *

Shown in action with the Elkhart Hose Control is the Elkhart J-200 Mystery Nozzle—a fog nozzle capable of discharging up to 475 gallons per minute at 125 pounds nozzle pressure. Its huge output provides an enormous blanket or wall of solid fog.

* * * *

Write us for further information, specifications and prices of the two vital fire-fighting tools shown here.

ELKHART BRASS MFG. CO., INC.
ELKHART, INDIANA

suffered fire losses of $772,627, sustained in 1082 fires in buildings, according to the Seattle Fire Department's Annual Report submitted by Chief William Fitzgerald. The per capita loss was $1.63; average loss per fire $714 and the fire department received 4733 alarms in 1945 of which 484 were false. The report states that the lives of 80 persons were saved as result of local fire-fighters' efforts.

* * *

Alameda Improves Rating

The Annual Report of the City of Alameda, Calif., Chief Thomas M. Lane, for the period 1944-45, includes a table showing the savings on insurance rates effected in the city "by reason of the City's improved fire protection status." The report points out that as a result of Alameda's new rating of 3rd Class City, approximately $65,000 per year has been saved to the citizens.

During the year Alameda had 93 serious fires, 65 of which were residential and 28 business houses.

* * *

Detroit Fire Department

The Annual Report of the Fire Prevention Bureau for the Year Ending Dec. 31, 1945, Edward W. Hull, Fire Marshal, contains much interesting factual data.

During the year the Fire Department responded to 16,769 alarms of fire, a decrease of 265 under 1944. Of these, 11,365 were for actual fires; 2,943 were false alarms; 2,457 were alarms "for cause" and 4 alarms were for fires outside the city. There were 40 extra alarm fires. The greatest loss of life was in the Export Box and Sealer Plant fire when fifteen employees, fourteen of them women, died or received fatal burns or injuries.

"This tragedy," says the report, "clearly indicates the necessity for a uniform national system of labeling of containers used for the transportation and storage of inflammable liquids." The fire was apparently caused when an inflammable liquid was accidentally poured into a heated degreasing vat designed for the use of non-inflammable liquids.

In 1945 the Department inaugurated a program of building inspection by fire company officers and sergeants, the men being supervised and trained by the Fire Prevention Bureau. During the year the Fire Prevention Bureau made 77,977 inspections.

* * *

Long Beach, Calif.

The Twenty-Fourth Annual Report, Division of Fire, Department of Public Safety of the City of Long Beach, Calif., has a number of innovations. Among these are a month-by-month high-light accounts of the more important activities of the year; an excellent comparative compilation of data on fires, losses, causes and other subjects for the years 1944-45; reports on public relations activities of the department; fire prevention work; maintenance data and costs; on communications (Long Beach makes excellent use of two-way radio), and reports of the drill master and fire department photographer.

Chief Frank Sanderson's organization responded to 2,585 alarms in 1945 as against 1,695 in 1944. False alarms were up—76 for 1945 and 51 for the year before. Fire losses, however, were down—$166,818 for last year as against $255,397.94 for 1944.

Floodlight
HAZARDOUS JOBS!
OPERATE TOOLS, PUMPS, BLOWERS, LIGHTS WITH ONAN POWER PLANTS
Ready for instant use, compact, lightweight Onan Electric Plants provide dependable power when you need it and where you need it. Can be easily carried into trouble areas. Fit into small space for truck installations.
High-tension ignition provides a hot spark for easy starting.
Four Twistlock receptacles permit direct plug-in of lights and motor-driven tools. Guarded pilot light gives ample illumination for operating.
Onan plants for fire-department applications are available in capacities from 350 to 4000 watts, powered by one and two-cylinder, 4-cycle air-cooled engines.
Other Onan Electric Plants are built in sizes from 350 to 35,000 Watts. 115 to 660 Volts A.C., 50 to 800 Cycles; 6 to 500 Volts D. C. Combination A.C.—D.C. types.
Plant shown is Model 15 DL-14, 1500 Watts, 115 - Volt D. C.
D. W. ONAN & SONS
4515 Royalston Ave., Minneapolis 5, Minn.
POWER & LIGHT FOR EVERY NEED
Onan
ELECTRIC PLANTS
Write FOR FOLDER A-136

Book Shelf

Arson Investigation

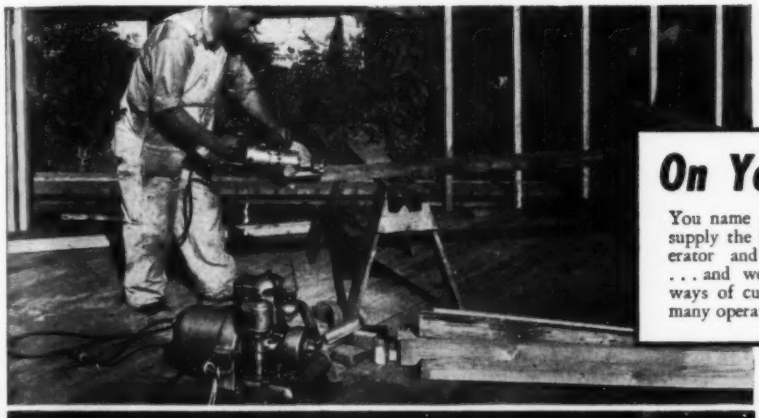
"Fire Investigations" is the title of a new book by H. Rethoret of the Fire Underwriters' Investigation Bureau of Canada, Inc., dealing with the subject of arson investigation and prosecution.

The present volume is the third written by the author, who is prominently known throughout the Dominion of Canada, and the United States, for his work in the field of arson. Previously published texts were "Arson, Fraud and Perjury," which served primarily as a guide to legal requirements, and "Incendiarism and Accidental Fires," which was devoted largely to fires themselves, and their cause.

In "Fire Investigations" the author has embodied much of the useful material of his earlier volumes and carried his researches further to include case histories and various legal decisions that would be helpful to investigators in the realm of arson—particularly in the Dominion.

The book contains over 467 pages of material classified under two sections, an index, case index and bibliography. Section I contains nineteen chapters covering all the more important phases of arson, including related data on insurance. Section II contains eighteen chapters devoted primarily to case histories of fires where arson was the cause, or believed to be the cause.

Step Right Up and Try Them Yourself



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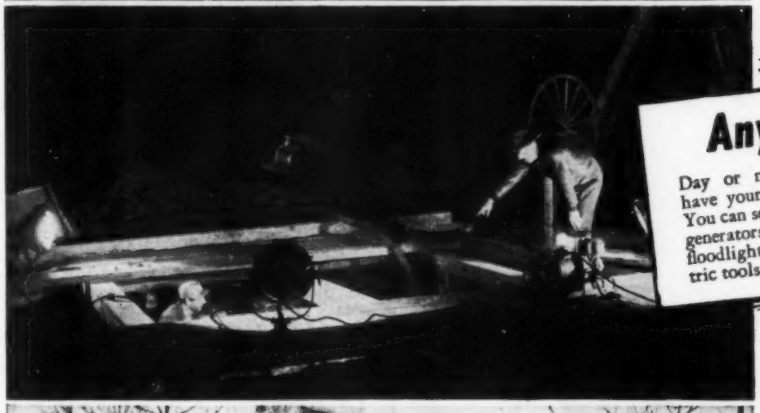
You name the job. We'll supply the Homelite Generator and power tools . . . and we'll show you ways of cutting costs on many operations.



Anytime

Day or night, you can have your demonstration. You can see how Homelite generators operate brilliant floodlights as well as electric tools.

Any Place

We'll go any place. We have representatives covering the entire country . . . men who will demonstrate all our equipment, our self-priming portable pumps, as well as our portable generators and blowers.

We want you to get the feel of Homelite Pump and Generator performance. We want you to see a Homelite Pump actually handling 15,000 gallons per hour . . . or lifting water 28 feet . . . or handling seepage or mud and solids without trouble.

Yes, and we want you to see a Homelite Generator operating floodlights, electric tools, radios, communications.

More than that, we want you to see how portable these gasoline-engine-driven units are and how easy they are to operate.

That is why we offer free demonstrations of Homelite Portable Pumps and Generators *on your job,* any time, any place. Write for a demonstration today.

Homelite

CORPORATION

Port Chester, New York

Portable Pumps Generators and Blowers

GASOLINE-ENGINE-DRIVEN

The text is plentifully illustrated with photographs, charts and diagrams.

Unfortunately, because of the confidential nature of the contents, the book is not available to the general fire service. It was published privately and its distribution is limited, it is said, solely to members of the Fire Underwriters' Investigation Bureau of Canada.

* * *

New Text on Two-Way Radio

"Two-Way Radio" by Samuel Freedman (Commander U.S.N.R.), published by Ziff-Davis Publishing Company, 350 Fifth Ave., New York 1, N. Y. ($5.00) describes the mechanics and applications of two-way radio for all forms of fixed, mobile or portable communications.

The subject text is arranged in 20 chapters and a ready index, with numerous illustrations, and a foreword by the author who is at present Assistant Director of the U. S. Naval Radio and Sound School in San Diego, Calif.

Commander Freedman has had wide experience in the radio field as radio operator, engineer, inventor, author, teacher and consultant. He was identified with the installation of two-way radio for the Hyannis, Mass., Police Department and the system connecting all public agencies throughout the Cape Cod area. In 1940 he designed and supervised the construction of the Maine State Police Radio System. He is a member of the Institute of Radio Engineers, Veteran Wireless Radio Operators Assn. and the American Radio Relay League.

How to make it hot for fires

No. 935 Chief's Car Whistle

No. 900 Shut-off Nozzle

No. 925 Siamese Gates

Every item added to your Buckeye complement steps up efficiency because each is a precisely engineered and carefully constructed piece of mechanism designed to do a specific job *best*. Shown here are a few—get details about the Buckeye line in the catalog which is yours for the asking.

Buckeye
FIRE DEPARTMENT ACCESSORIES

BUCKEYE IRON AND BRASS WORKS • DAYTON 2, OHIO

Persons in the News

F. C. MacGillivray Chief at Halifax, N. S.

F. C. MacGillivray has been promoted to the rank of Chief of the Halifax, N. S., Fire Department, succeeding the late Chief John W. Churchill, who passed away September 25, 1945.

Chief F. C. MacGillivray

The new chief was born in the City of Halifax and has served in the fire department for the past twenty-eight years in the capacity of hoseman, pump operator, captain, deputy chief and officer in charge of the fire prevention division, which office he held until his promotion to chief.

Chief MacGillivray has a certificate from the Boston Fire College where he attended an officers' training course and holds a certificate from the civil defense school at Amherst, Mass.

C. W. Pierce President at N.F.P.A.

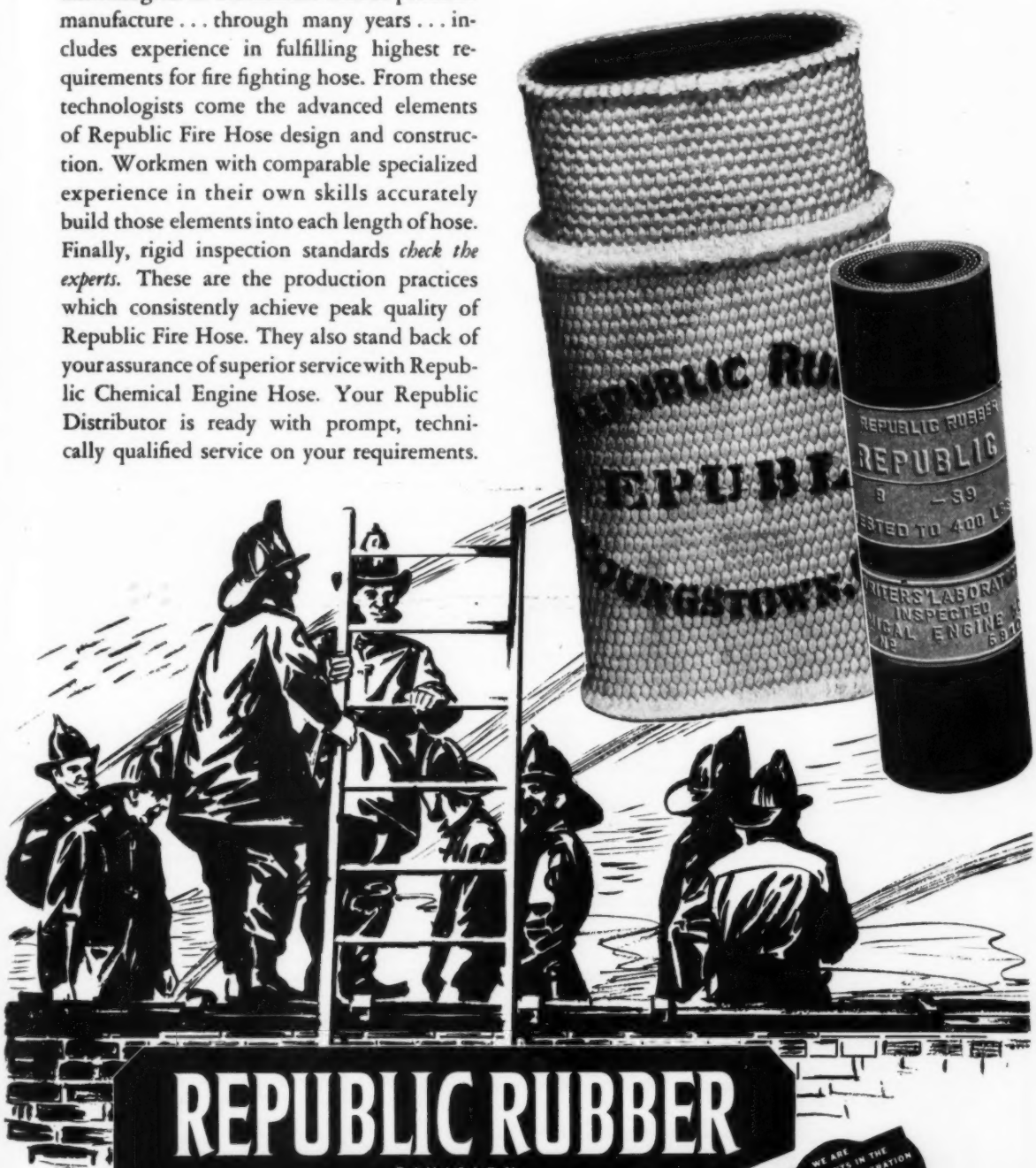
Curtis W. Pierce, President of the Factory Insurance Association, was elected President of the National Fire Protection

C. W. Pierce

Association on June 7, 1946, at the closing session of the 50th Annual Convention of the NFPA, held in Hotel Statler, Bos-

Republic Checks the Experts
IN FIRE HOSE CONSTRUCTION

The specialization of Republic technologists in mechanical rubber products manufacture . . . through many years . . . includes experience in fulfilling highest requirements for fire fighting hose. From these technologists come the advanced elements of Republic Fire Hose design and construction. Workmen with comparable specialized experience in their own skills accurately build those elements into each length of hose. Finally, rigid inspection standards *check the experts.* These are the production practices which consistently achieve peak quality of Republic Fire Hose. They also stand back of your assurance of superior service with Republic Chemical Engine Hose. Your Republic Distributor is ready with prompt, technically qualified service on your requirements.



REPUBLIC RUBBER
DIVISION
LEE RUBBER & TIRE CORPORATION
YOUNGSTOWN 1 OHIO

REPUBLIC INDUSTRIAL PRODUCTS
YOUNGSTOWN, O.

LEE DELUXE TIRES AND TUBES
CONSHOHOCKEN, PA.

WE ARE PARTICIPANTS IN THE OWNERSHIP AND OPERATION OF NATIONAL SYNTHETIC RUBBER CORPORATION

ton. He succeeds R. E. Vernor, Fire Prevention Manager of Western Actuarial Bureau, Chicago.

Mr. Pierce was born in Brooklyn and comes from a long line of New England ancestors. He made his initial contact with what was to be his life work—insurance—in 1900 when he took a position as draftsman in the inspection department of the Associated Factory Mutual Companies in Boston. He was soon promoted to the inspection field force.

He joined the Continental Insurance Company in 1911 and, in 1912, was assigned to take charge of its engineering activities in the New England field with headquarters in Boston. He became Chief Engineer in 1918, and was elected Secretary of the American Fore Group in 1921, and Vice President in 1924, which latter position he retained until the time of his election to the Presidency of the Factory Insurance Association in 1942.

Stanley Herdzik Heads Dearborn Fire Department

Captain Stanley Herdzik has been promoted to Chief of the Fire Department to succeed Roy E. Mottesheard who retired on April 2, 1946. The new chief was honorably discharged from the Army.

Chief Herdzik qualified for the appointment in a competitive written examination prepared by the Michigan Municipal League and conducted by the Mayor's three-man citizens committee.

A Dearborn fire fighter since December 9, 1925, Chief Herdzik grew up with the department which had only 18 men when he joined it, compared with an authorized strength of 135 men on July 1, 1946. He was made a lieutenant on December 16, 1937 and promoted to captain on November 1, 1943.

In addition to his other duties as a fire fighter, Chief Herdzik completed the Institute of Applied Science's special course in arson, sabotage and finger printing and is a graduate in first aid work. In 1943 he was awarded a "Citation for Meritorious Service" by Fort Dearborn Post 364, American Legion, for extraordinary courage in the line of duty after being injured while fighting a bad fire.

H. L. Dey Chief at New Orleans, La.

Howard L. Dey has been appointed Chief of the New Orleans, La., Fire Department, succeeding Chief Frank Rivard.

H. L. Dey

He was appointed a supernumerary fireman on November 6, 1916, receiving his permanent appointment on October 16, 1917. He was promoted to lieutenant on September 16, 1921, and to captain on June 1, 1929. Six years later, on January 18, 1935, he was promoted to assistant chief and assigned to the Sixth Fire District until his appointment as Chief of Department on May 6, 1946.

Since his inauguration, Chief Dey has installed a new school of training, and all new members assigned to the department must finish a course of training of eighty-four hours on the drill grounds and fourteen phases on the drill tower, making a total of 160 hours of training before actually going into a fire station.

Ex-Chief R. H. Bowker Dead

Former Fire Chief Reginald H. Bowker, of Passaic, N. J., died June 14 in the Passaic General Hospital, which he entered a month ago with pneumonia. He would have been 79 on July 28.

Chief Bowker served Passaic 42 years, 19 as volunteer fireman and 23 as chief of the paid department.

Born in Manchester, England, he came to the United States with his family in infancy. His family lived sev-

HOLOCAUST

PANIC

THOUSANDS TRAPPED

CIRCUS INFERNO

LA SALLE

59 PERISH

BIG FIRE

DAMAGE AND LOSS OF LIFE FROM FIRE CAN BE REDUCED WITH

Fire Chief Duck

Rigid inspections are not enough. FIRM action against property owners who fail to heed orders for protective measures immediately, is essential. Lenience has taken a heavy toll in innocent lives where enforcement could have saved them.

Every public place should be compelled to keep on hand—ready for instant service—throw-over Covers of non-inflammable yet waterproofed FIRE CHIEF DUCK. It costs a little more than ordinary waterproofed duck, but the difference is that between a wet match and a dry one.

The "Big Top" is now non-inflammable, but earlier use of FIRE CHIEF would have spared many lives and the slight extra cost would seem trivial compared with the loss through destroyed properties, cancelled engagements and claims resulting from the circus disaster at Hartford, Conn.

Ample FIRE CHIEF COVERS are a "must" in every FIRE DEPARTMENT'S fighting equipment. Set the example and you'll be called out less often.

For particulars—write

RED HEAD BRAND COMPANY

Pioneers in FIRE CHIEF Duck Covers

4311 Belmont Ave.—Chicago 41, Illinois

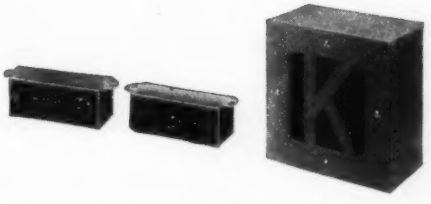
KAAR INSTANT HEATING MOBILE FM

Now available! An FM Radiotelephone with a truly NATURAL voice quality!

New KAAR FM radiotelephones offer an improvement in tone quality which is suprising to anyone who has had previous experience with mobile FM equipment. The over-all audio frequency response through the KAAR transmitter and receiver is actually within plus or minus 5 decibels from 200 to 3500 cycles! (See graph below.) This results in vastly better voice quality, and greatly improved intelligibility. In fact, there is appreciable improvement even when the FM-39X receiver or one of the KAAR FM transmitters is employed in a composite installation.

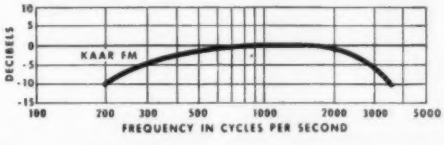
KAAR FM transmitters are equipped with instant-heating tubes, thus making it practical to operate these 50 and 100 watt units from the standard 6 volt ignition battery without changing the generator. Inasmuch as standby current is zero, in typical emergency service the KAAR FM-50X (50 watts) uses only 4% of the battery current required for conventional 30 watt transmitters. Battery drain for the KAAR FM-100X (100 watts) is comparably low.

For full information on new KAAR FM radiotelephones, write today for Bulletin No. 24A-46.



KAAR LOUD SPEAKER, remote controls for transmitter and receiver (illustrated above) and the famous Type 4-C push-to-talk microphone are among the accessories furnished with the equipment.

IMPROVED OVER-ALL FREQUENCY RESPONSE THROUGH KAAR FM TRANSMITTER AND RECEIVER



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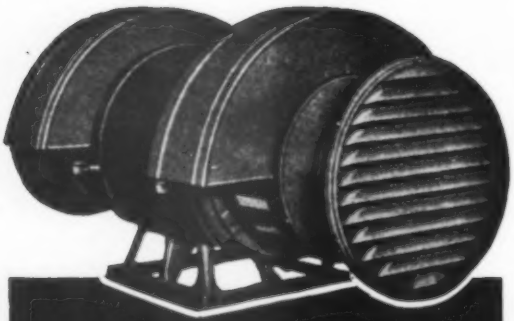


STERLING MODEL "M"
GENERAL ALARM SIREN
You Can Depend On It ALWAYS

An absolutely dependable, tried and proven siren for communities of all sizes. Loud, clear, simple to instal and no maintenance to bother with. Embodying the "know how" of the oldest and largest makers of siren signals in the fire field. Write for descriptive literature and list of towns using the model "M".

ALSO
manufacturers of a complete line of apparatus sirens.
Write for literature.

STERLING SIREN FIRE ALARM CO., Inc.
55 Allen Street Rochester, New York

Faster than Fire.

RANDOLPH TRIGGER-TOUCH
EXTINGUISHERS!

Just ONE HAND snaps this extinguisher from its bracket . . . one trigger-touch sends clouds of powerful carbon dioxide into the fire—smothers it in *split-seconds!*

With no valves or nozzles to adjust, Randolph extinguishers eliminate panic—get the employee to the blaze *before* it spreads.

A dry, non-toxic gas, carbon dioxide cannot stain or damage equipment, will not freeze or deteriorate—eliminates annual refilling and costly repairs.

Check on the flammable liquid and electrical fire hazards in your plant—then write us today for the complete fire protection facts.

ALL SIZES
Mobilize your employee fire defense with Randolph 4, 10, 15 or 25 fast-action carbon dioxide extinguishers. All units pass Underwriters' rigid fire-fighting tests 100%—prove their effectiveness.

RANDOLPH LABORATORIES, INC.
11 East Kinzie Street, Chicago, 11, Illinois

eral years in New England before coming to Passaic about 70 years ago.

Chief Bowker joined the volunteer department in 1890.

After his retirement in 1932, he retained his interest in the fire department.

Chief Bowker was a member of the International Association of Fire Chiefs.

Chief T. C. Neill Dead

Thomas Carlton Neill, fire chief of the Spencer, N. C., Fire Department for twenty-one years, died at the Rowan Memorial Hospital on June 3. Chief Neill suffered a stroke on that day shortly after 5 o'clock while riding his bicycle. He was within a half block of his home when he suffered the stroke and fell from the bicycle. He died about three hours later.

Chief Neill was born in Statesville, son of Frank and Mrs. Alice Campbell Neill. He moved to Spencer about thirty-eight years ago and was employed as a machinist at local railway car shops.

Chief Freemon Dies in Chicago Hotel Fire

Eugene T. Freemon, who died in line of duty while fighting the fire in the Hotel La Salle, in the early hours of June 5, 1946, had been a Battalion Chief in the Chicago Fire Department since June 16, 1943. He was promoted while serving in the Navy.

Chief Freemon entered the fire department at the age of 26, was promoted to fire engineer five years later, on Jan. 1, 1929, and advanced to lieutenant on Aug. 16, the same year.

He was made captain Feb. 1, 1941 and entered the Navy March 1, 1943, serving until Oct. 1, 1945, when he was discharged as full lieutenant. Most of his time in that service was spent as senior security officer at Pearl Harbor.

The Watch Desk

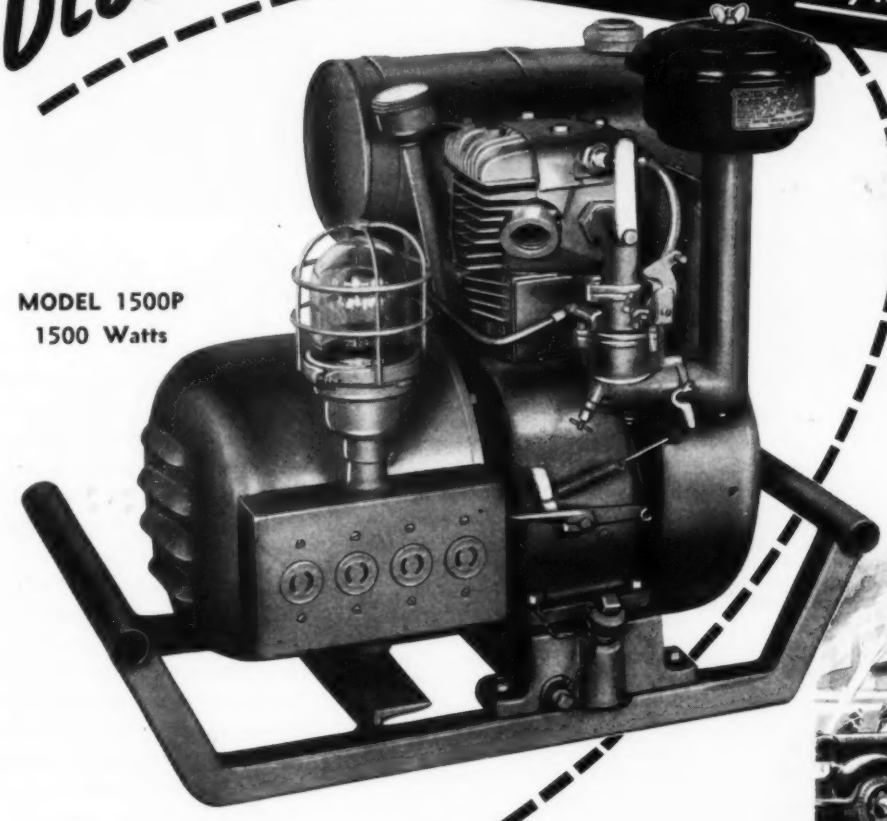
(*Continued from page* 533)

Assn. of New York City has never had to pay the $500 reward which it offered for the arrest and conviction of the sender of the false alarm that caused the death of Fireman John Eisenman, 38, father of four children in December, 1945. . . . After saving his wife, an expectant mother, and his son, John G. Wright, 37, Verona, N. J., died when he reentered a blazing home in an unsuccessful attempt to extinguish a third floor blaze. Suffocation. . . . Shiny new fire trucks recently received in San Antonio, Tex., have been named *"Jonathan Wainwright," "Frank G. Huntress"* and *"Walter W. McAlister."* . . . In Burlington, N. J., a new pumper has been dedicated to those members of Beverly Road Fire Company who gave their lives in World War II. . . . In Scranton, Pa., Andrew Lazor, 56, killed himself with a charge of dynamite, blowing off his head. . . . In Syracuse, N. Y., Howard Scott, 7, faces probable blindness as result of an explosion of a gasoline tank. He and three companions who escaped injury were playing on the site of a building being demolished after a fire.

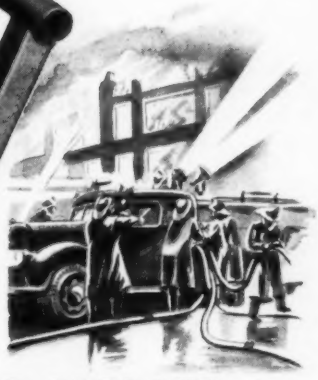
N. Y. City expects tests for firemen, and for officers, including the rank of lieutenant and higher officers to be held.

AS YOU WOULD DESIGN IT!

This 1500 watt Portable meets your own specifications of what a fire department portable should be . . . dependable . . . compact . . . easy to operate!



MODEL 1500P
1500 Watts



DEPENDABLE

The 4-cycle engine is quick-starting . . . a feature you appreciate on cold winter nights. And you don't have to nurse it along . . . just start it and let it run. This tough little unit has built-in stamina for long hours of continuous operation.

COMPACT

Here's a 1500 watt generator, powered by a 3.2 HP engine — yet it weighs only 150 lbs.! An easy load for two men. Designed so you can stow it in a minimum space (only 22½" high).

EASY TO OPERATE

Voltage regulation is automatic . . . no adjusting needed. Lubrication is positive splash system . . . no fussing to mix gas and oil. Engine is air-cooled, eliminating freeze-up dangers.
If you'd like information on other "U.S." Electric Plants . . . (we build a complete line, from ½ to 125 KW, both AC and DC), send us a card.

U. S. MOTORS CORP.

430 NEBRASKA STREET **OSHKOSH, WISCONSIN**

HYDRANTS, VALVES
and Pipe Line Accessories

Installing 30-inch M&H Valve in Cast Iron Pipe Supply Line

VALVES: A. W. W. A. types, iron body, bronze mounted with double-disc parallel seat or solid wedge type. Non-rising stem, outside screw and yoke; or, with sliding stem and lever. Also furnished hydraulically operated. Square Bottom type operates in any position. All are rugged and dependable, made of best material with highest quality workmanship.

A. W. W. A. HYDRANTS
Underwriters Approved

SPECIAL TRAFFIC MODEL (shown at right) is designed to yield at ground line under impact, repair being simply renewal of breakable bolts and breakable coupling on stem. Dry top, revolving head, easy to lubricate. High efficiency because barrel diameter not reduced and there are no working parts or obstructions in waterway.

Conform to American Water Works Association specifications. Approved and listed by Underwriters' Laboratories and Associated Factory Mutuals. Well known and widely used for many years.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

shortly . . . Promotional examinations for fire alarm telegraph dispatcher and radio operator in the New York Fire Department has been announced. . . . The Uniformed Firemen's Association of New York has purchased a mobile canteen for the Fire Department. . . . The New York Central Railroad has perfected a "hot-box" alarm, which warns trainment of over-heated axle journals ("hot-boxes" to us) by a cloud of smoke and a bad odor. The device will be installed on 720 new passenger cars ordered recently. . . . A bill has been introduced in the New York State legislature which provides that a person who, during the war emergency, served as a temporary fireman in New York City may take a special qualifying examination, and upon qualifying have his name entered upon the Firemen's eligible list for appointment to the Fire Department. Those qualifying shall be placed ahead of all eligibles on the list, except veterans.

* * *

Smoke Got in Her Eyes!

Magistrate Frances W. Lehrich, Flatbush, Brooklyn, N. Y., made the headlines and got a few snickers in February last when she imposed fines on subway smokers on a new basis—a graduated scale based on her idea of the "nuisance value" of the respective smoke "weapon." Her schedule soaked cigarette smokers $2; cigar smokers $3; and pipe smokers $4. Magistrate Lehrich explained:

"Cigarettes are obnoxious. Cigars are even more so, because they are larger, the smoke is greater and the flame is bigger. Pipes are beyond the pale, positively!" (thanks to the many clippers who sent this item).

* * *

Well! Well!—Considerable Poundage!

Here's one culled from the Mattoon, Ill. Journal-Gazette on Feb. 14:

SALEM GETS AID IN FIGHTING FIRES

Salem, Ill.—The city of Salem has accepted an offer of Halliburton Oil Well Cementing Company to furnish two trucks, suitable for emergency fire fighting.

The special built units are equipped with pumps and hose capable of increasing pressure from 500 to 6,000 pounds and throwing from four to seven barrels of water per minute. . . ."

All we can say is we hope the hose for use with "6,000 pounds" ain't that s.j. O.C.D. stuph.

* * *

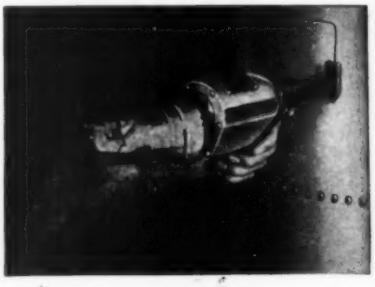
Parelli, Pagnozzi and Piermont

For the second time within recent months, fire has pursued Piermont, N. Y., and the Piermont Fire Department, Chief Frank Parelli particularly.

The first 'visit' was when the firehouse itself was damaged by a blaze. Then, fire played a return engagement on a Saturday afternoon when the chief's car was "destroyed by flames", and the Pagnozzi home scorched.

Chief Parelli, who had a few moments before taken his car from a local garage, parked it in front of the Pagnozzi home on Piermont avenue, while he went into Piesco's grocery. Mrs. Parelli, left sitting in the car, smelled smoke and beat a hasty exit as flames shot out from the gasoline tank and, fanned by the wind, reached almost to the Pagnozzi home.

THE NEW SAW-GUN
SHOULD BE STANDARD ON ALL FIRE-FIGHTING EQUIPMENT



Here's Why..!

The Saw-Gun is a portable power-saw that will quickly cut into all metals, wood and other materials. Quickly attaches to any electric or air drill, and may also be propelled by a flexible shaft. Insert ordinary hack-saw blade for cutting.

Firemen equipped with this handy tool can now get at the fire quickly. Can cut openings into obstructions regardless of their material. Cuts rapidly through heavy gauge steel. No need to waste precious time removing steel gratings . . . cut them out of the way with this amazing portable tool. Does away with slow, cumbersome, dangerous gas cutting torches, together with their long lines of hose and heavy tanks.

Progressive fire-chiefs who know the importance of getting at a fire *fast*—who want a quicker means of getting to entrapped persons, will add the Saw-Gun as standard equipment.

SEE YOUR JOBBER or WRITE DIRECT

W. H. HOWLAND
2533 E. 73rd Street, Chicago 49, Ill.

If you want 350 G.P.M. on a fire

THE ACCEL-O-RATE MODEL 4½

JET PUMP BOOSTER will give it to you . .

BUT . . .

SEE the ACCEL-O-RATES at the CLEVELAND CONVENTION July 23-26 Booth No. 18 Find Out for Yourself What They Will Do

We at Derbyshire knew the facts about the needs of rural fire fighting companies when we designed the smaller Model 2½. In fact, the larger Model 4½ could have been offered to you "off the shelf," since we have made similar jet pumps by the thousands for Navy fire fighting uses. Instead, for your added safety, we engineered the Model 2½ that gives you the water you need for RURAL FIRE FIGHTING because:

1. We have found that modern fire fighters today are interested in distributing water properly on a fire only in sufficient volume to put it out. Today it is a matter of *gpm of water per square foot of fire* —not the total volume of water over the fire that counts. Fog nozzles and similar equipment are common accepted practice and operate at high efficiency with only 25 to 50 gpm.

2. Following the lead of the Navy, we steadfastly refrained from a design incorporating any moving parts which could wear out or become clogged, or with bearings to fail.

3. The Accel-O-Rate requires no lubrication or other maintenance. It's always ready to go.

4. Why make a heavier, more cumbersome unit with such high capacity that it might drain a well or other limited water supply in the first 2 to 3 minutes?

5. The Accel-O-Rate at all times will satisfy both a ¼" and a ½" tip at the same time (or their fog nozzle equivalents).

6. "Easy to carry" is a *must*. The Accel-O-Rate 2½ weighs but 17 pounds, and the larger Model 4½ is still light at 31 pounds.

7. We have designed a unit that can be operated in any position —sideways, upside down, or up straight—and needs no supporting rope.

8. Fast, sure set-up is important—the Accel-O-Rate is as quick in action as laying and coupling your hose.

Again we emphasize—for your assurance of enough water at all times Derbyshire engineers designed the Accel-O-Rate 2½ to deliver an adequate volume of water—under any combination of lift and reach conditions.

FOR ALL GENERAL RURAL FIRE WORK

The Model 2½ will give you the water you need on the fire—quickly and surely!

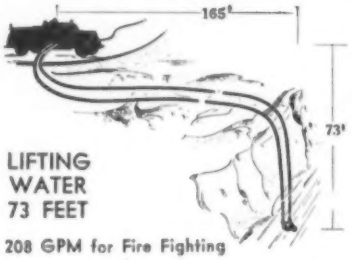
It is well to remember—a jet pump can be designed to deliver any desired volume of water—10,000 gpm if you wish, but If you want 350 gpm, for example at 40' lift and 150' reach, the Model 4½ is the answer—no other booster pump as advertised can match this performance.

JET PUMP DIVISION

DERBYSHIRE MACHINE & TOOL CO.

5222 BELFIELD AVENUE, PHILADELPHIA 44, PENNA.

LIFTS WATER 100 FEET



LIFTING WATER 73 FEET

208 GPM for Fire Fighting

CHAMPION

HI-LIFT SUCTION BOOSTER $165

The Darley Hi-Lift is a turbine-driven centrifugal pump, not to be confused with jet devices which cannot equal the Hi-Lift for VOLUME of water delivered.

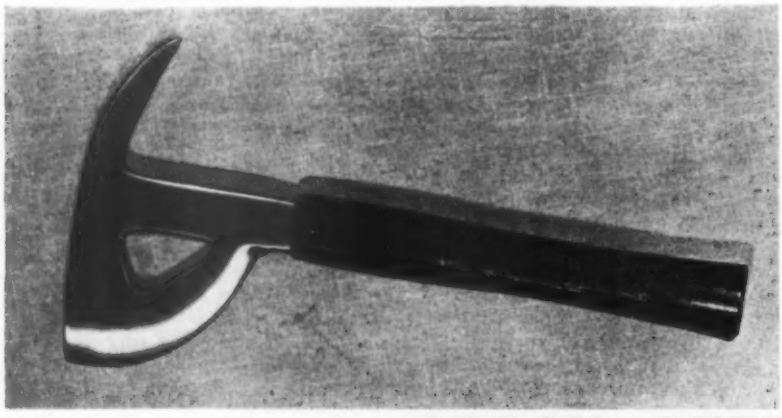
Before you buy check and compare VOLUME.

MAKE YOUR OWN TESTS
REQUEST A HI-LIFT
FOR 30-DAY FREE TRIAL

WRITE TODAY FOR ILLUSTRATED CIRCULAR

W. S. DARLEY & CO.

ESTABLISHED 1908 CHICAGO 12, ILL.



UNCLE SAM wanted a Better **CRASH AXE!**

—here it is!

O.P.A. APPROVED
List Price: $5.75
F.O.B. Columbus, Ohio

Distributors' Inquiries Invited

The STEEL CRASH AXE shown here was originally designed for the U. S. Army Air Force. *This Axe chops . . . rips . . . and cuts through metal.* It is a one-piece all-steel implement; the steel handle is insulated with a special hard rubber composition to withstand *20,000 volts* . . . the purpose being to permit the use of this Axe in cutting through live wires, if necessary.

Although the Axe has many uses, its name describes its special use, and it is fast replacing the old type Axes that are in use in the fire-fighting, marine, aviation, railroad, building and mining industries.

Specifications: 1095 *straight carbon steel;*
Weight, 2½ *pounds;*
Length, 15 *inches;*
Insulated for 20,000 *volts*

AMERICAN MERCANTILE COMPANY, Inc.

33 West 42nd Street New York City 18

The Piermont vamps were summoned, with every piece of equipment, but the fire was so hot they had a difficult time getting near the blaze. Although they prevented extension of the fire, the chief's car was wrecked. The cause of the blaze is unknown (Thanks "Babby" Babcock).

* * *

Roast—or "Ground" Squab Mebbe!

From Giles Dow, Fire Chief in Stoughton (Wis.) and clipper-contrib' to the Watch Desk, comes this item:

A pigeon, possibly looking for a warm spot to hide from winter's blasts found what looked like refuge in Stoughton City Hall's fire siren.

The hideout, however, brought a tragic finish to the pigeon, and a temporary quietus to the fire siren.

Seems the siren was due to sound at 7:00 of a Monday morning but instead of its usual Banshee's wail, which calls the Vamps into action, nothing came forth but a faint, hoarse whisper. Un huh, investigation disclosed that Mr. Pigeon had nested in the "inner workings" of the siren and when the button was punched he was quickly ground to pigeon-meat—with the siren short-circuiting.

Reports hath it that the siren's intestines were sent to Madison for purging. Meantime cooperation between the telephone company and a packing plant is being relied upon to wake up and warn the firemen.

Missouri Valley Chiefs Meet

The Eighth Annual Convention of the Missouri Valley Associatoin of Fire Chiefs was held at Wichita, Kans., Monday and Tuesday, May 27-28.

Headquarters was the Hotel Lassen, the business sessions being held at No. 2 Fire Station, the location of the Fire School.

Hon. Frank W. Coleman, mayor of Wichita, welcomed the delegates. There were appropriate memorial services for the departed members, conducted by Rev. R. W. Preboth, addresses by Chief John T. Lynch, president of the Association, and others.

Monday's business program included addresses by: F. E. Carlson, Engineer, Underwriters Grain Association, Chicago, on "Fire Prevention and Protection—Grain Storage"; Chief George R. McAlpine, Oklahoma City, who spoke on "Airport Hangar Fires and Hazards of Transporting Gasoline"; Hugh Walker, Engineer, American-La-France-Foamite Corp., whose subject was "Post War Fire Apparatus."

Following demonstrations at the Drill Yard the Wichita Fire Department provided a dinner and entertainment for members and guests.

Tuesday's business session included papers by Fred A. Werbe, Kansas State Fire Marshal, whose subject was "Cooperation Between Fire Departments and State Fire Marshals"; R. D. McDaniel, Indianapolis, Ind., who spoke on "Electrical Inspections by Firemen;" Eugene N. Smith, Director of Service, Wichita, whose topic was "Cooperation Between Building Inspectors and Fire Department," and Dwight Brantley of the Federal Bureau of Investigation, Kansas City, Mo. ,who discussed "Law Enforcement—Problems of the Present Era."

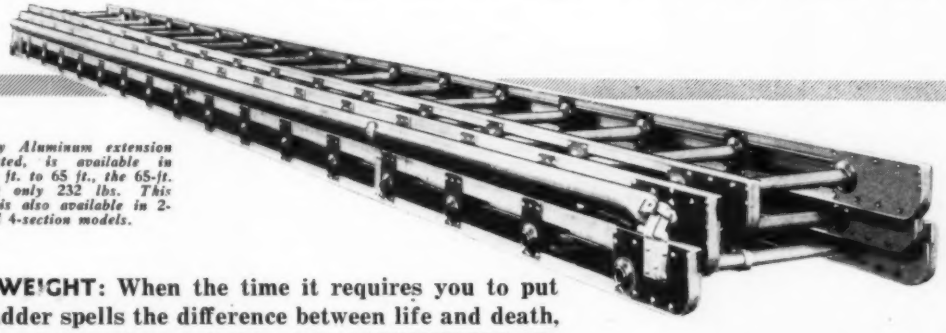
Again Available

LIGHTER

STRONGER

SAFER

ALUMINUM FIRE LADDERS

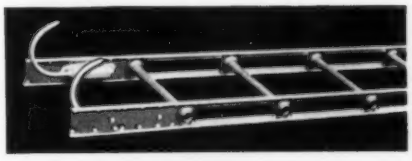


The heavy duty Aluminum extension ladder, illustrated, is available in lengths from 30 ft. to 65 ft., the 65-ft. length weighing only 232 lbs. This popular ladder is also available in 2-section and 4-section models.

LIGHTWEIGHT: When the time it requires you to put up a ladder spells the difference between life and death, you'll be glad you have a *lightweight* ALUMINUM LADDER. Their light weight means you can maneuver them easily . . . raise them quickly even in congested areas with very few men. Moreover, it enables you to carry more men and heavier equipment aboard each truck.

STRONG AND DURABLE: Every ALUMINUM LADDER is heavily riveted and constructed of a high-tensile-strength Aluminum Alloy. Ladders 40 feet or more in length are supplied with attached stay poles at no additional cost. Fireproof and non-corrosive qualities assure positive user safety and remarkably long ladder service.

MORE DEPENDABLE: For many years, ALUMINUM LADDERS have given outstanding performance. The qualities of light weight and great strength are valued beyond all measure by firemen everywhere who have tried and proven their superiority. Send for our free catalog and pick out the ALUMINUM LADDER to fit your needs. We know you'll be satisfied.



ALUMINUM ROOF LADDER

Completely aluminum except for the folding hooks, which are of the best forged steel. Ideally right for bridging across hot floors or roofs. Can be tailor-made to your specifications. Complete range of sizes from 12′ to 30′ 7″ in length.

ALUMINUM PIKE POLES

Handles are constructed of aluminum alloy tubing—will not break under strain. Hooks are of strong forged steel. Available from stock in 8, 10, 12, 14 and 16 ft. lengths. Special lengths if desired.

Aluminum Ladder Company

200 Carbis Street
Worthington, Pennsylvania

For the best in Firemen's Boots

LOOK FOR THE
TOP NOTCH SIREN LABEL

This is your guarantee of foot comfort, safety, long wear

Sold only through authorized distributors

A PRODUCT OF
BEACON FALLS RUBBER FOOTWEAR
BEACON FALLS, CONNECTICUT

Russell E. McClure, City Manager, Wichita, further expounded the policy of cooperation in an address captioned: "Coordinating Fire Service With Other Municipal Functions."

The new officers elected by the Association are: C. W. Brown, Chief Fire Department, Wichita, Kans., president; Chas. L. Slade, Chief, Fire Department of Des Moines, Ia., first vice-president; Wm. H. Gardner, Chief, Salvage Corps, Kansas City, Mo., second vice-president and Ray Tiller, Chief, Fire Department, Waterloo, Ia., secretary-treasurer and director to the International Association of Fire Chiefs.

Warns Against Sub-Standard Extinguishers

Selection of fire extinguishers, unless obtained directly from the manufacturers or their authorized agents, requires special care at the present time because equipment now available from other sources as the result of government release of surplus extinguishers may no longer be fit for service.

Some of the models carry only "EAS," or temporary, approval by the Underwriters' and Factory Mutual Laboratories. These are the substandard devices manufactured as an emergency measure during the wartime shortage of critical materials. They are readily recognized by the letters, "EAS," which stand for "Emergency Alternate Specifications" on the nameplate. Also such equipment bears a decalcomania rather than the standard metal nameplate. Emergency approved extinguishers were not expected to stand up as long as the standard types and by now may be wholly unserviceable.

Other equipment released as surplus, though standard at the time of its manufacture, may now be dangerous to use because of mishandling or improper maintenance since it left the factory. Dents, bulges, signs of corrosion, evidence of soldering or other repairs are indications that the equipment should not be used until it has been properly repaired and tested by the manufacturer.—Safety Research Institute.

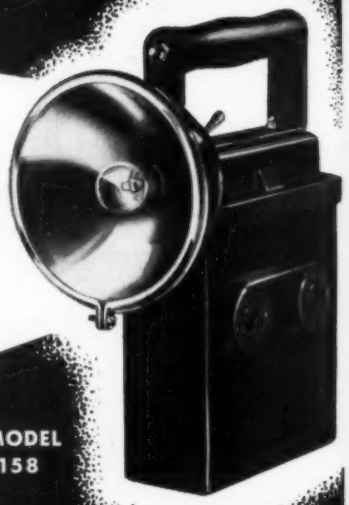
Fire Losses in May Up 35% Over Year Ago

Estimated fire losses in the United States during May totaled $46,094,000, an increase of $11,941,000 or 35% over May, 1945, it was announced by W. E. Mallalieu, General Manager of the National Board of Fire Underwriters. May's losses were 11% less than losses of $52,153,000 for April, 1946. The estimates are based on incurred losses reported to the National Board by member companies, plus an allowance for unreported and uninsured losses.

These losses for May brought the total for the first five months of 1946 to $253,066,000, a figure that approaches the total fire losses of $254,959,423 for the full year of 1937. They are larger than total losses of $235,263,401 for the entire year of 1935.

Losses for the 12-month period ending May 31, 1946, were estimated at $509,094,000 as compared with $439,342,000 for the previous 12-month period.

THE NEW
LOW PRICED
WHEAT
Rechargeable Spotlight



MODEL
158

NOW AVAILABLE FROM STOCK—
ADAPTABLE TO ANY REDUCED BUDGET

FEATURES

- Less expensive operation than dry cells.
- Free use of hands. Light carries conveniently on shoulder strap.
- Positive "Non-spill" construction.
- Light can be focused and directed as desired.
- Weighs only 92 ozs. complete.
- Simple to charge and water. No need to take lamp apart.
- Low price and operating cost make Wheat adaptable to any reduced budget.

2,500 FOOT BEAM
25,000 CANDLE POWER
1,000 HOURS OPERATION

KOEHLER MFG. CO.
MARLBORO, MASSACHUSETTS

Preserved For Posterity

ALBERT W. ROWE, CHIEF
JOHN W. DOYLE, ASSISTANT
BURLEY MARSHALL, ASSISTANT

VERN R. McMILLAN, MAYOR
BOARD OF WORKS AND SAFETY
A. C. BUDDLESTON, PRES.
PAUL G. LINDEMAN, VICE-PRES
JOHN FITZGERALD, SEC'Y.
AUGUSTA MASON, CLERK

CITY OF TERRE HAUTE
INDIANA
FIRE DEPARTMENT
HEADQUARTERS
28 SOUTH NINTH STREET

February 5, 1946

The American District Telegraph
Company of Indiana,
201 Sycamore Building,
Terre Haute, Indiana.

Gentlemen:

January 31, 1946 at 7:26 P.M. we responded to an alarm from your Aero Automatic Fire Alarm System in the Swope Art Gallery. On arrival, there was no indication, whatsoever, of fire in the building but your annunciator, located adjacent to the building entrance, showed fire on the third floor. After we entered the building we found the entire third floor full of smoke. Apparently a spark from a chimney on an adjacent building had lodged behind a window casing and set it afire. We have no way of knowing how long it took this fire to burn through the casing, but evidently your Aero System picked it up immediately.

The Swope building is a three-story and basement building, with the first floor a multiple occupancy, the Art Gallery occupying the second floor and the third floor vacant. The third floor has an open-joist ceiling and very little delay would have given us a fire of first class proportions. Destruction of the second floor alone would have caused a loss of well over $300,000.

We were commended very highly by the owners of this property for holding the loss to a very small amount. This we attribute to the efficiency of your System which we recommend very highly.

Albert W. Rowe, Chief
Albert W Rowe
Terre Haute Fire Department

Chief Rowe lauds efficiency of Aero System in protecting $300,000 Swope Art Collection.

To avoid heavy fire and water damage in buildings housing objects of artistic and historical value, *speed* is a vital factor in the detection and reporting of fires. • The outstanding effectiveness of the Aero Automatic Fire System in protecting such buildings, as well as other types of structures and occupancies, is attested by the above letter from Fire Chief Albert W. Rowe of Terre Haute, Indiana. • May we tell you how this and other A.D.T. Services can help solve your protection problems? *Write for descriptive booklet.*

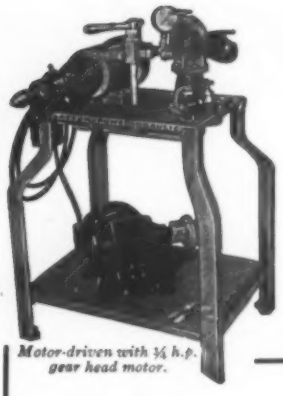
AERO AUTOMATIC FIRE DETECTING AND REPORTING SERVICE

Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York*

CENTRAL STATION OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

A·D·T

Electric Protection Services
AGAINST FIRE · BURGLARY · HOLDUP
A NATION-WIDE ORGANIZATION



Motor-driven with ¼ h.p. gear head motor.

DAYTON
POWER-DRAULIC EXPANDER
OFFSETS the increased price of fire hose

EXPANDS rings on couplings from ¾-inch chemical hose to 6-inch suction with positive expansion.

TESTS hose up to 700 lbs. pressure automatically. No manual labor required whatever.

REMOVES old rings from couplings without the use of hammer and chisel in half the time—optional attachment—easy, simple operation; larger, roomier work table, fully streamlined.

Write for descriptive literature.

DAYTON FIRE EQUIPMENT COMPANY
1242-48 W. 2nd St., DAYTON 7, OHIO

LISTEN-CHIEF

IF YOU CAN FIND A BETTER HOSE CLAMP THAN THE PEERLESS *BUY IT-*

BUT REMEMBER WE HAVE BEEN MAKING AND SELLING THE PEERLESS FOR 36 YEARS AND WHO SAYS THE FIRE CHIEFS CAN BE FOOLED THAT LONG?

WE ARE SUPPLYING ALL THE LARGE MANUFACTURERS OF APPARATUS AND SHIPPING TO ALL STATES AND TO FOREIGN COUNTRIES.

SPECIFY THE NEW PEERLESS ON NEW MOTORS—AND GET THE BEST

CHANGES IN STREAMS HAVE TO BE MADE—MAKE THEM QUICK AND EASY—USE THE PEERLESS WITH LESS MEN.

THE PEERLESS HOSE CLAMP
PATENTED AND MANUFACTURED BY
KELLAM MANUFACTURING CO., P. O. BOX 729, ATLANTA 1, GA.

With Our Readers

(*Continued from page* 530)

an asbestos shield and a long length of pipe with nozzle on two wheels ahead of us that I believe we could get to within 50 feet of the fire from the flank side and that we could slowly drive the fire back at the point where we were operating, instead of it driving us back.

Perhaps the idea is practical and perhaps it isn't; but, at the time it seemed feasible to me because of our flank position and because we had a clear, level ground approach. Using shields or special clothing to protect men operating deck pipes on apparatus also seemed feasible. I believe the deck pipes could have gotten to within 50 feet of the advancing edge of the main body of the fire.

As far as getting water onto the main body of the fire was concerned, under the circumstances we were helpless. As we were being slowly driven back we confined our operations to extinguishing dozens of incipient fires that seemed to spring up from nowhere, all around us, wetting down buildings and breaking heat waves with water curtains. This involved so much moving around, dragging hose, and changing positions that in an hour or so my men were leg weary. Had it not been for civilians, mostly bathers, my company would have needed relief or would have had to let some incipient fires get away from them.

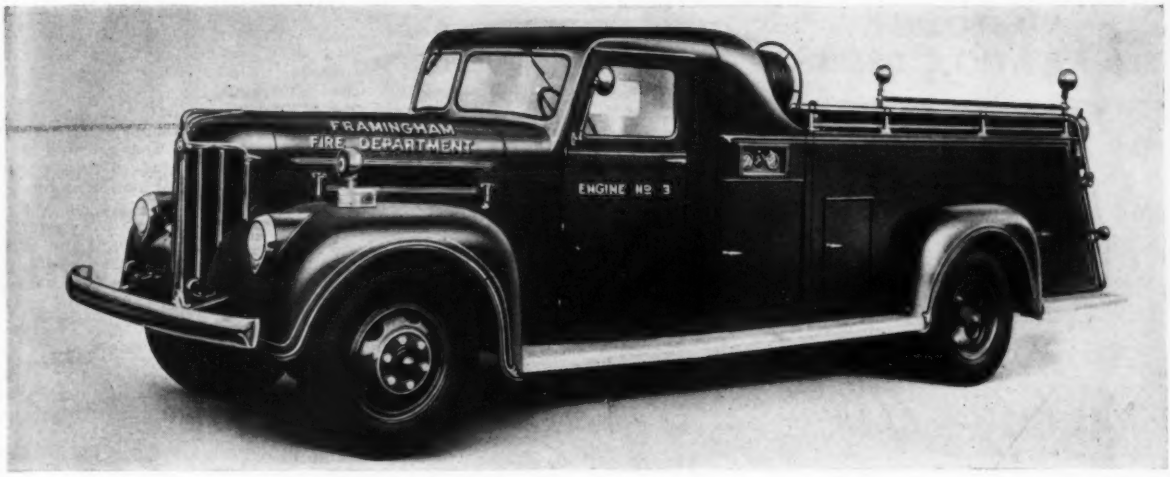
The idea of shields and a long pipe may be practical in a limited way in some instances; but that idea is as nothing compared to the one that follows:

The equipment involved and its use are not original, but the idea is new and hasn't caught on or been tried in this country as far as I know.

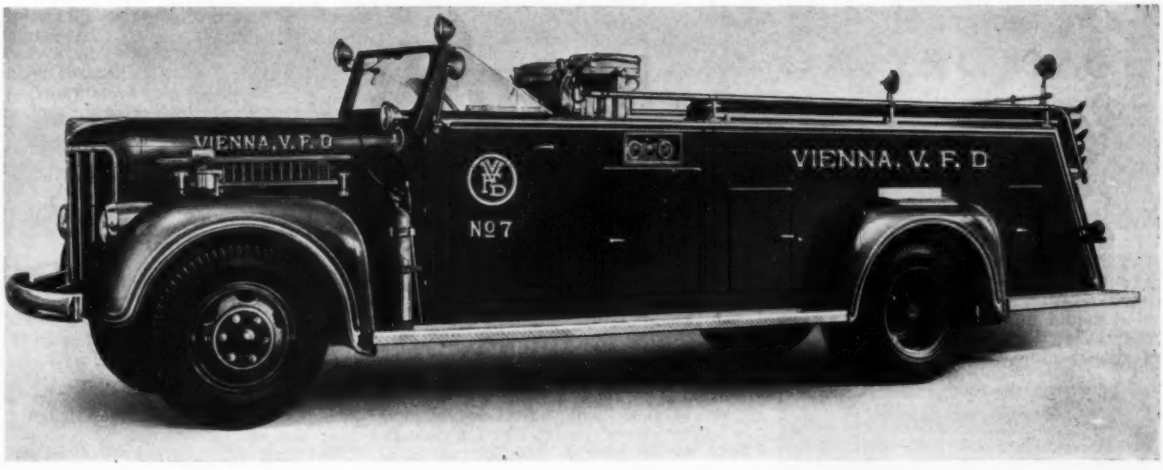
When Chief Deasy of the New York Fire Department returned from London, after making a study of fire-fighting under bombardment and war time conditions, it was my privilege to listen to his lecture given to lieutenants of the department, at the Fire College. I won't swear to the accuracy of the figures, but he made mention of a water tower, either as part of London Fire Department equipment or as an idea of his own, I don't know which—a water tower capable of being extended 200 feet, delivering a stream at least 300 feet range, discharging 2000 gallons per minute, capable of being rotated 360 degrees, raised and lowered to any angle and having a crow's nest for observation and direction.

Imagine such a tower with a play of 300 feet radius, 600 feet diameter, sticking its nose into the Luna Park fire, at a distance of say 250 feet away, and blasting away at a clip of 2000 gallons per minute right into the incandescant heart of the fire! That one piece of apparatus, making possible the direct application of water at a safe distance, would have licked that fire in short order and in my opinion is worth more than an entire 3rd alarm assignment because the men can't get close enough.

If such a piece of apparatus doesn't exist, why shouldn't it? We certainly have the engineering skill to design and make one—with a body heavily weighed on the style of our cranes and steam shovels, with tormentors if necessary; with a body about 50 feet long to permit easy handling through city streets; with the pipe or water carrier designed



MAXIM *Dependable* APPARATUS



Built to last by New England craftsmen who have been building fire apparatus and only fire apparatus through two generations.

MAXIM MOTOR COMPANY

MIDDLEBORO, MASS.

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

Better
FIRE STATION DESIGN

with

CIRCUL-AIR

THE AIR-CONDITIONING
FIRE HOSE DRYER

In eliminating the unsightly hose tower and cumbersome rack and the "dead" space they involve your architect can plan a really attractive station of functional design. The thousands of dollars saved in construction costs could provide a lot of other needed equipment. DON'T give your modern fire dept. an old-fashioned home.

Better
HOSE DRYING

Chiefs and firemen prefer this modern ELECTRO-MECHANICAL DRYER because it: (1) does a better job in a fraction of the time; (2) saves most of the hard work; (3) takes up so little floor space; (4) is ideal for hose storage; (5) lessens need for large hose reserves; (6) dries clothing as well as hose.

CIRCUL-AIR is ideal for *fire stations of any size* . . . indeed many larger cities have re-ordered for additional houses after initial installations have proved it the fastest, easiest and most economical drying medium.

THE CIRCUL-AIR CORPORATION
575 East Milwaukee Street
DETROIT 2 MICHIGAN

on the principle of the telescope, rib reinforced longitudinally, and about 8 inches in diameter at the base and about 4 inches at the top.

We have the water, the pumpers and the high pressure system to adequately feed it. We need such a big mobile water gun.

Some of the uses that come to my mind:

1. Any large area such as lumber yard, pier, plant, storage yard, ship and many buildings.
2. Places otherwise inacessible due to railroad yards, bridges, rivers, etc.
3. Rescue at high altitude.
4. Equipped with fog nozzle and supplied at pressures high enough to create a veritable fog at oil refineries, at and on oil storage tanks.

200 feet reaches up pretty nearly 20 stories. To me that idea alone has fascinating possibilities. What do you think?

ANTHONY R. MARTUCCI
Lieut. Ladder 118
(Detailed to Ladder 131)
N. Y. F. D.

Editor's note:

The "tower" to which you refer no doubt is the British "turntable" ladder. If our information is accurate, the longest such "turntable" ladder is 150 feet (the Mertz type). It is also made in 100 and 60 foot lengths.

These ladders consist of a main ladder and three or more extensions, all metal, operated by power take-offs. They do not have a "pulpit" or "crows' nest" as some believe, but do have a 'platform' at the tip where a man may stand and direct the monitor, or "ladder gun" as we know it. He has telephone connection with the ground.

No such type ladder or "tower" monitor is at present designed or built to deliver the volume of water you have indicated, i.e. 2000 GPM. Furthermore, lateral movement of the stream is limited when the ladder is extended. At their best, most "turntable" ladders, extended, have a turning radius of not over 210 degrees. However, the most serious drawback to their use on a scale such as you picture would be that of reaction to the water pressure necessary to gain volume and range.

If the ladder pipe, or monitor, was to discharge 2,000 gallons per minute, it would mean that the tip would have to be 2½ inches diameter at 116 pounds. This would give a reaction of 1,087 pounds, which would probably be beyond that at which the ladder would remain stable.

A Lieutenant's Examination

To the Editor:

I am a regular paid fireman employed by the city of ——— for the past seven years. For the past five years I have received your magazine and get a great deal of pleasure in reading your articles. They keep me informed of everything that is of interest to a fireman. In fact, you cover so much material that it is an education in itself.

One of the most interesting sections of your journal is the "Question and Answers" page; I always make a habit of going over it thoroughly. I am going to suggest that a little more be added in the line of examinations for promotion that are being held throughout the country.

In contacting brother firemen, I find their greatest interest is what is being asked in the examinations throughout their state. As it is almost impossible for most firemen to contact brother firemen in other cities, is it possible to use your magazine as a sort of clearing house for information that will be of great interest to all—especially material relating to examination questions?

I am enclosing a copy of the questions given in the last examination in our city (private to lieutenant). I hope you will publish this so that it will give our brothers an idea of the kind and extent of our examination, and may at the same time bring forth the best answers to the questions.

(Name withheld by request.)

Examinations—Private to Lieutenant

1. What would be the friction loss in 200 ft. of 2½ in. hose with 300 gals. per min. flowing?
2. With a single line of 2½ in. hose, 200 ft., a 1¼ in. nozzle, engine pressure of 123 lbs., what would the nozzle pressure be?
3. With the above layout, what would the flow be in gals. per min.?
4. What are the hazards incidental to the use of tank trucks?
5. What is the definition of a tank truck according to the Regulations of the —— State Department of Public Safety?
6. What is the law governing the business of conducting or maintaining an open air parking space?
7. At what temperature does a white sprinkler head fuse? At what temperature does a blue sprinkler head fuse?
8. What are the fire hazards incidental to the conduct of a restaurant?
9. What are the regulations of your department relative to roll call?
10. Name eight violations of conduct that are forbidden in quarters in your department.

Time limit: First five question 1½ hours.; then a recess of ½ hr. Second five questions 1½ hrs.

Letter: What is the purpose of National Fire Prevention Week. Tell in 150 words. Time limit ½ hr.

Editor's Comment: FIRE ENGINEERING has always been, and always will be the "Clearing House" for factual information about the fire service. This is borne out by such features as "The Round Table," "Questions and Answers," and this section—"From Our Readers." Now that the post-war fire service is planning or holding examinations for firemen and officers, we expect to devote additional space to these details,—giving not only the questions but the reportedly correct answers.

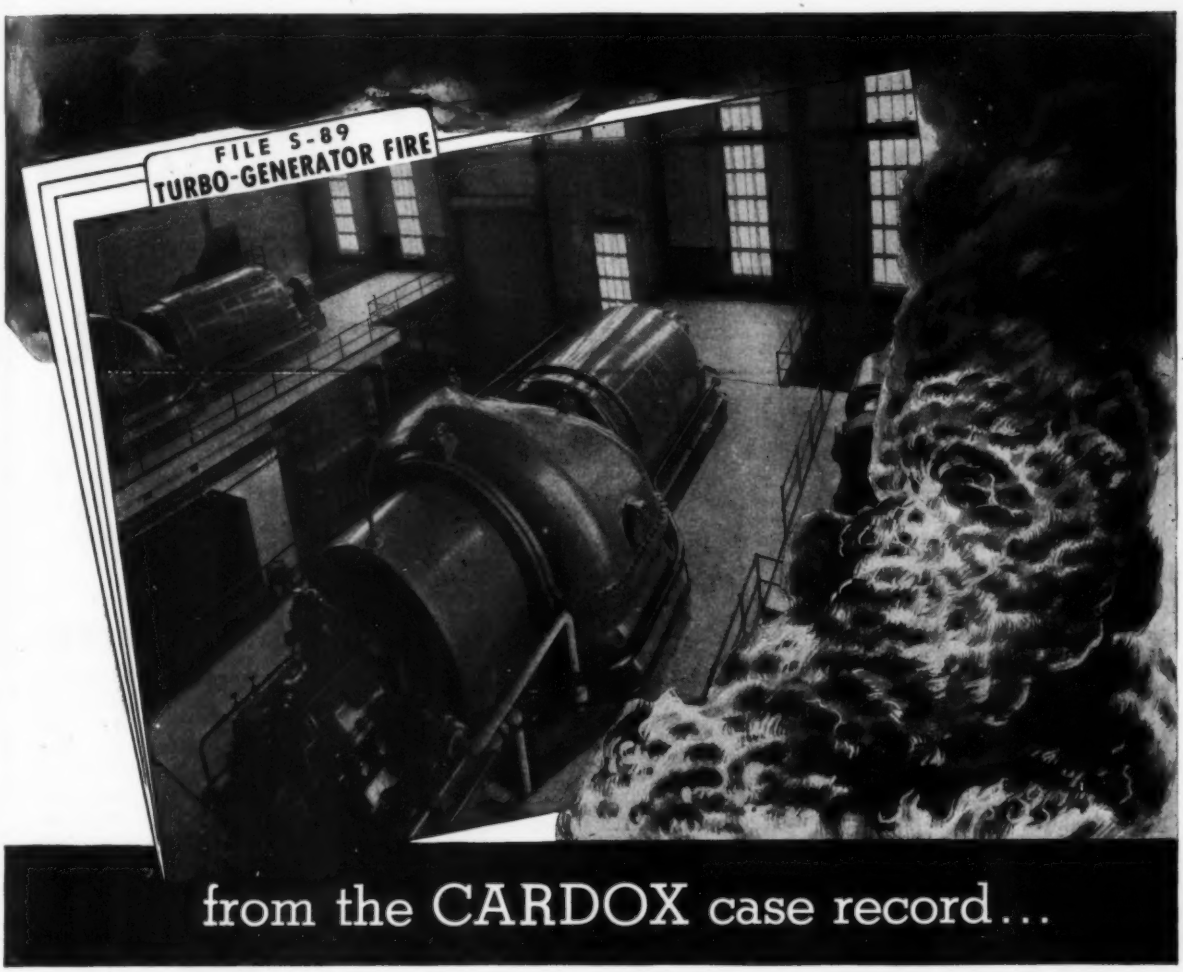
We will be pleased to entertain and publish replies to the foregoing.

Placement of Relay Pumpers

To the Editor:

It appears that in answering N. R., on Page 798 of the October issue, he is in the position of the farmer who purchased a blind cow: You gave him a "bum steer," because this man's question has really not been answered. As we see it, he wants to know how you would set the pumpers, which at the hydrant, and how far apart. As we know, the 1,000-gallon job comes first, but we differ with your answer of 150 feet apart.

Your book says that 400 feet lead should be ⅔ the distance between Engine 1 and 2, or 600 feet. But we are



from the CARDOX case record...

Out of actual on-the-job fire experience comes convincing evidence that Cardox Fire Extinguishing Systems have broadened the performance scope of carbon dioxide as a fire fighting medium . . . to set a new high standard of protection for many of the most severe hazards in American industry.

File No. S-89, recording a report on Cardox speedy extinguishment of a 15,000 K.W. Turbo-Generator fire, offers an interesting example of Cardox performance on one of many types of hazards most effectively protected by fast-acting, non-damaging Cardox CO_2.

"Turbine had been shut down for clean-up of exciter and periodical tune up. In putting generator on the line, a direct internal short and resultant fire occurred.

"The Cardox System was actuated automatically by differential relay and operated perfectly on timed discharge. While insulation on coil end loops is burned off in some areas, fire did not reach into that part of the coils in the stator slots. Furthermore, inspection shows the rotor to be entirely undamaged. Plant Fire Chief is especially well pleased by the speed of extinguishment since such a fire normally results in very severe and costly damage to the generator. In this case, only a minimum of repair time and expense will be involved."

The danger spots in your plant may not be similar to the one described here. But if they involve electrical equipment, flammable liquids or any of a multitude of hazardous operations, a Cardox System offers a new high standard of swift, efficient protection. Through the distinctive Cardox method of control and engineered application, fast-acting, non-damaging carbon dioxide is made available in *tons* for large fires . . . in *pounds* for small ones, with ample reserve for new emergencies.

An analysis of your fire hazards by Cardox Research Division and Engineering Staff puts you under no obligation. Write for Bulletin 546, explaining why and how Cardox has given carbon dioxide a scope of usefulness and fire extinguishing performance far beyond its generally recognized scope.

SEE OUR EXHIBIT AT THE 73rd ANNUAL CONFERENCE OF INTERNATIONAL ASSOCIATION OF FIRE CHIEFS, CLEVELAND.

CARDOX
CO_2 FIRE EXTINGUISHING SYSTEMS

CARDOX CORPORATION
BELL BUILDING • CHICAGO 1, ILLINOIS

limited here by the tremendous loss in friction in single 2½-inch line and the 50 pounds nozzle pressure. We must confine ourselves to the capacity of the pumper, giving 530 gallons, which can be had from this first size pumper at 300 pounds E. P.

Therefore, we add the 50 pounds N. P. to the friction loss in the 400-foot lead line of 16.7 pounds per hundred feet x 4 for 400 feet, making the engine pressure at Engine 2, 116.8 pounds. The No. 1 pumper need only furnish this 530 gallons to the second engine at a pressure of 10 pounds, and operating at 300 pounds, we have the balance, or 290 pounds, for use as friction loss. The friction loss per 100 feet of 2½-inch hose discharging 530 gallons is 61.48, which divided into the allowable loss of 390 pounds indicates that the distance between Engine 1 and Engine 2 will be 4.17 units of hose, or 471 feet, actually 450 feet or 9 lengths away.

There is no apparent reason for using two pumpers for this operation as the 1,000-gallon pumper can easily supply the required nozzle pressure and discharge through the single line of 2½-inch hose to a wye and the two lead lines mentioned above, and at the same 300 pounds E. P., and for 2.8 units or 280 feet, actually using 250 feet, with spare pressure for safety. Totals would be 50 pounds nozzle pressure; 66.7 pounds friction loss in 2½-inch lead line; 5 pounds for the wye connection and balance for 530 gallons in the 2½-inch supply line.

As we know, these 1,000-gallon pumpers use hose tested at 600 pounds, or are capable of withstanding pressures far and above the 300 pounds required at pumper No. 1. Therefore the "bugaboo" of staying within the 200-pound danger line, we often read about, does not apply in this case.

Even if we apply your book formula and set pumper No. 1 the full 600 feet away at the hydrant, and use two 2½-inch lines to supply pumper No. 2, we obtain a total engine pressure at the source of 232 pounds and a supply of 530 gallons as required. Pressure at nozzle is 50 pounds; friction loss in 2½-inch line to pumper is 68 pounds; ten pounds pump pressure is allowed into pumper No. 2; friction loss through two lines of 2½-inch hose from pumper No. 1 to pumper No. 2 is 102 pounds, totalling 232 pounds engine pressure.

MAX VALLEN, Battalion Chief,
New York Fire Department.

Solving Complex Hose Layouts

To the Editor:

In operation at large fires it is often necessary to lay long stretches and still obtain heavy streams. This sometimes results in complex layouts of whatever combinations and sizes of hose that happens to be available at the time. Engine pressure is usually determined by a good guess, which is later corrected by observation of the behavior of the stream.

However, after returning to quarters, officers may want to check up on just what the layout was doing. The following method will give these results as close to actual pitot gauge readings as the conventional method, and use less than half of the number of figures. Both methods are shown in full for comparison, it the following example:

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COLT

The Shut-Off Nozzle With the Reputation

Our Thirty Odd Years' Experience in Manufacturing Nozzles cannot be denied, and backed by a Five-Year Guarantee on each Nozzle You Obtain only the Best when you get a *COLT*.

Playpipes, Siamese—Plain or with Shut-Offs, Hydrant Gate Valves, 1", 1½", 2½" Quarter-Turn Shut-Off Single Gate Valves. All types Brass Hose Connections.

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Make Your Truck a Completed Fire Weapon with

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Fire Protection Equipment

34 Years in Fire Protection

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ROSS RELIEF VALVES

1" to 2½" female threads

MODERN PUMPERS

demand these rugged, modern relief valves. Their simplicity and responsive dependability make them a must. Made in sizes from 1 inch to 2½ inches with capacities up to 1600 g.p.m. and pressures up to 750 lbs. Write for descriptive literature describing the complete line of

TRAILER PUMPERS

Trailer pumpers require valves made especially for this type of work, such a valve is the ROSS Trailer Pump Relief Valve. Made in sizes from 1 inch to 2½ inches with pressure adjustments from 10 lbs. to 750 lbs. and capacities from 0 to 500 g.p.m. at 120 lbs. pressure.

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INCORPORATED
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INVINCIBLE

The
ORIGINAL
GUN OF THIS TYPE AND STILL THE BEST

NOZZLES

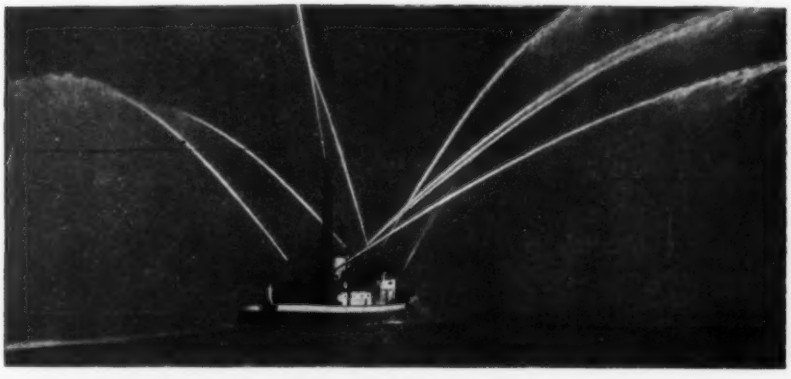
The restrictions on metals for Invincible Nozzles are now lifted. At long last you can order the world's finest and most effective nozzles, with a view to getting them without delay.

Invincible Nozzles were the first of their type in the fire service. Through the years they have been constantly perfected and today's Invincible Nozzles are the champion of them all—bar none. Make it a point to specify Invincible Nozzles on all new pumpers.

F. N. McINTIRE BRASS WORKS
221 HIGH STREET **BOSTON, MASS.**

NEW YORK CITY

has nine Invincible Nozzles on its million dollar fireboat, "FIRE FIGHTER". These same nozzles are to be found on government vessels on all seven seas, and, of course, in hundreds of fire departments. The first nozzle of its type —and the best.



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Central 500-Gallon Equipment mounted on 1½-ton chassis.

WE BUILD A TRUCK FOR EVERY COMMUNITY, LARGE OR SMALL. WRITE US FOR DESCRIPTIVE LITERATURE

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3929-31 LACLEDE AVENUE ST. LOUIS, MO.

"Everything for Fire Fighting"

THE VERSATILE *Emergency* TOOL

PORTER FIREMAN'S CUTTER

Here is a high-speed, heavy duty "hot" line cutter—with important secondary uses.

Has Cohardite insulation moulded onto the handles — a safety measure against abrasion and puncture — each pair of handles thoroughly tested before shipment, to withstand 20,000 volts. Jaws easily cut ½" solid copper wire and open out to 1⅛" to admit heavily insulated wire. Its special search hook helps find and guide wires into the cutting jaws in smoke and darkness.

In fire fighting, wreckage clearance and rescue work, this tool is quick, efficient and dependable.

SEND FOR FREE DESCRIPTIVE FOLDER

H. K. PORTER, INC., Boston 49, Mass.

Assume the following layout: a 1,000 gallon per minute pumper leads out with 500 ft. of parallel 2½ in. hose which is siamesed into 500 ft. of 3 in. hose, which in turn connects to 200 ft. of single 2½ in. hose with a nozzle having a 1¼ in. tip.

CONVENTIONAL METHOD

Convert 10 length of parallel 2½" to single line of 2½".

2.777 length 2½"

3.5 | 10.000
72
280
252
280
252
280
252
28

Convert 10 lengths 3" to 2½".

3.846 lengths 2½"

2.6 | 10.1000
88
220
208
120
104
160
156
4

10 lengths 2-2½" = 2.777 lengths 2½"
10 lengths 3" = 3.846 lengths 2½"
4. lengths 2½"

Add 10.623 lengths 2½"
Multiply .248 K for 1¼" nozzle on 2½"

84984
42492
21246

2.634504
Add 1.1 Constant

3.734

200 ÷ 3.734 = 53.56 P.S.I., N.P.

SHORTER METHOD

10 lengths parallel 2½"
.066 = K for 1¼" noz. on parallel 2½"

60
60

.660 = (K × L) for 500 ft. parallel 2½"
10 lengths 3"
.092 = K for 1¼" noz. on 3"

20
90

9.20 = (K × L) for 500 ft. 3"
4 lengths 2½"
.248 = K for 1¼" noz. on 2½"

.992 = (K × L) for 200 ft. 2½"
Add .660 = (K × L) for 500 ft. 2-2½"
.920 = (K × L) for 500 ft. 3"
.992 = (K × L) for 500 ft. 2½".
1.1 = Constant

3.672

200 ÷ 3.672 = 54.46 P.S.I. N.P.

HENRY T. HANSON,
Maynard Mass.

Test Results Questioned

To the Editor:

On page 762 of your October issue, you describe a series of tests that were run by the Ashford General Hospital Fire Department, White Sulphur Springs, W. Va., with various streams obtained from one or two pumpers at 1,000 and 1,800 feet stretches.

There would appear to be some conflict between the results claimed in these

Starting in 1824 every— Eastman Product—has held Leadership in the Fire Fighting Field

The reason is simple—

We were among the first organizations to enter the fire field, starting with leather hose and nozzles which we dropped later for metal. We were one of the first firms in this country to make available efficient fire fighting nozzles, siamese, deck guns and like products.

Down through the years the men and women of this organization have faithfully carried on the New England tradition for making better things for fire fighters—all their experience and skill has made the name EASTMAN the standard that holds undisputed leadership in the fire fighting field.

We'll be looking for you at the New England Fire Chiefs Convention.

In this modest little building the Eastman Idea was born in 1824.

Nothing takes the place of Experience

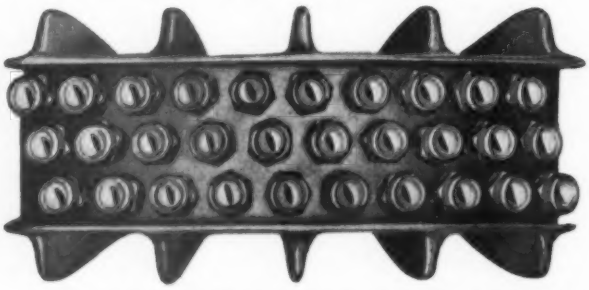
SAMUEL EASTMAN COMPANY, INC.
CONCORD, N. H.

Since 1824

HYDRAULIC IMPINGEMENT

Gives You

LOWER OPERATING PRESSURE, GREATER VOLUME and a NOZZLE to MEET EVERY OPERATING PRESSURE



LARGE HOLES WHICH PREVENT CLOGGING

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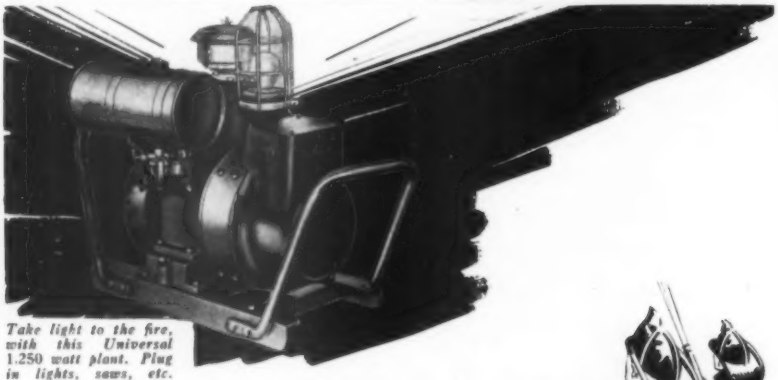
3165 S. PENN ST. INDIANAPOLIS 44, IND.



Take light to the fire, with this Universal 1,250 watt plant. Plug in lights, saws, etc.

FIGHT NIGHT FIRES FASTER

Have Ample Floodlighting with a . . .

Universal ELECTRIC PLANT

Hand Carried, Trailer or Truck Models—250 to 25,000 Watts

● Floodlighting with a Universal electric plant makes possible faster, more efficient firefighting—helps in saving lives and property.

Universals are available now in a size to fit your requirements. 100 gas-engine models to choose from—ranging from small 250-watt battery-charging plants . . . compact, hand-carried plants having pilot light and plug-in receptacles for floodlights, electric saws, cutters, etc. . . . dolly or trailer units —to medium and large capacity plants for truck service.

Universals are quick starting; are built for long years of reliable, low-cost service. For AC or DC current. Write for literature and recommendations.

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tests and those which could be expected on the basis of established formulas and frictional loss tables. In test #3, for instance, using the National Board of Fire Underwriters fire stream tables, it would appear that the actual nozzle pressure should have been approximately 8" pounds instead of 65 pounds, and the discharge 158 gallons per minute, instead of 135.

In test #4, the nozzle pressure should have been 55 pounds instead of 72 pounds; the discharge, 219 G. P. M. instead of 243 G. P. M.; and the friction loss 12 pounds per 100 feet, instead of 9¾ pounds per 100 feet. Actually at a flow of 243 G. P. M., the friction loss would have been 14.2 pounds per 100 feet instead of 9¾ pounds per 100 feet as claimed.

In test #5, the nozzle pressure should have been 30 pounds instead of 43 pounds, and the discharge 205 G. P. M, instead of 243 G. P. M.

In test #6, the nozzle pressure should have been 40 pounds instead of 50 pounds, and the discharge, 187 G. P. M. instead of 210 G. P. M. Had there been an actual flow of 210 G. P. M., the friction loss would have been 11 pounds per 100 feet or a total of 198 pounds, which would have allowed just 2 pounds nozzle pressure which, of course, was impossible. It would appear that there was no variation in elevation between the No. 2 pumper and the nozzle to account for these differences, so one is forced to the conclusion that the "Piezometer" is a rank individualist.

HUGH N. MCNAIR.

Editor's Note: It is not uncommon for test figures to vary considerably from those secured by use of formulae.

It should be pointed out that friction loss in different sections of hose of the same diameter may vary as much as fifty per cent. Some 2½-inch hose, for example, is manufactured with an internal diameter 2 9/16 inches; other specimens of hose may, under pressure, increase in diameter beyond the 2 9/16-inch point. Thus it is quite likely that the friction loss we would secure by hydraulic calculations would differ appreciably from those secured from actual tests.

While the gauges employed in such a test may be inaccurate, such is less likely to be the cause than would variations in the friction loss characteristics of the hose itself.

The Round Table

(*Continued from page* 544)

the opposite direction to the real American way of justice.

Hold your examination, Mr. Commissioner, but try to keep the men in your department in mind first. Choose a man to succeed the present acting chief when his time is really up and keep the respect of your entire community.

John A. Moran, Chief, Johnstown, Pa.: I believe the Board of Fire Commissioners are wrong. The man with long service experience and ability should be kept on to have an efficient fire department.

James Louis McLane, Chief, Charleston, W. Va.: If the acting chief is sixty-one years of age and is automatically barred from the examination, there evidently is an age limit. Therefore, the fire commissioners are doing the only thing left to do.

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Directs-
Acts-

***Coordination*—welds men and equipment into a powerful, cohesive, fire-fighting unit.**

***Direction*—steps up efficiency, eliminates lost motion, produces teamwork.**

***Action*—gets quick results—saves lives, property, equipment, time.**

● All three mean better fire-fighting—with G-E fire-fighting radio. Low cost, simple installation and easy operation make it a vital *must* in your program of municipal protection. G-E radio engineers, located in principal cities will assist you in planning a modern and efficient system. Call or write today to your nearest G-E office or the Electronics Department, General Electric Company, Syracuse 1, N. Y.

G.E. has Complete 2-or 3-way Fire-Fighting Equipment

- 60 and 250-watt Station Equipment.
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President

C. G. BRAXMAR CO., Inc.
242 W. 55th Street, New York 19, N. Y.

However, it is not a good policy to throw the examination open to "any citizen within the boundary limits of the city."

If the Fire Commission can get around the age limit, it would be better to retain the acting chief on account of his experience. They should correct their civil service law to keep the examinations in the department.

Charles H. French, Chief, Manchester, N. H.: I believe the present acting chief should be allowed to carry on as long as he is physically and mentally able. The department will benefit by the knowledge imparted by him to the officers who will later succeed him.

James M. Duncan, Jr., Chief, Alexandria, Va.: I do not believe the Board of Fire Commissioners are taking the proper action in opening up an examination to any citizen within the confines of the city.

The practical experience and the knowledge gained by the acting fire chief in his long years of service far outweigh the age limitations as set up by the commissioners. Their action will also tend to kill the initiative of any man in the fire service of that particular city.

Competitive examinations through the ranks of sergeant, lieutenant, captain, deputy and battalion chief stimulate the interest of the firemen and keep them studying. But a man chosen as chief of fire department must also be an executive as well as a fire fighter and I believe should be selected from the men who have risen to the higher ranks of the department.

Walter S. Blanton, Chief, Savannah, Ga.: I believe the acting chief should be appointed chief by all means. His experience and ability far outweigh age limitations.

Brooks McClure, Chief, Huntington, W. Va.: I believe the Board of Fire Commissioners are acting unwisely in this case. Unless there is a civil service ruling I would suggest the age limit be raised.

Harry J. Brown, Chief, Reading, Pa.: We are a volunteer fire department with the exception of drivers. All drivers returning from service will be placed in their former jobs. The department will do everything in its power to replace or help volunteers secure employment.

F. F. Schroeder, Chief, Everett, Wash.: The solution to this situation is to retain the present chief. The first thing to consider in selecting a fire chief is experience and the next is his ability as an officer. With this man qualifying A-1 in both of these, it would be very unwise to look further for a chief.

* * *

The following reply is in answer to a previous discussion on spreading life nets under ladders during rescue operations

Franklyn P. Kellogg, 1560 S.C.U.,M.P. Sec., Camp Atterbury, Ind.: My opinion as to spreading life nets during rescue operations is that at the present such work is not feasible due to the shortage of manpower and the fact that men properly trained in ladder work will not find it necessary to waste men on life net work when they are so sorely needed elsewhere. Rescue work is done at the most critical stage of a fire when all hands are needed most.

Fyr-Fyter equipment has proven its value in preventing small fires from becoming disastrous through the loss of life and property. Recent catastrophic fires with terrific loss of life emphasize the urgent need of fire protection. A complete line of Underwriters' Laboratories labeled Fire Extinguishers.

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Get Fyr-Fyters for safety's sake. We advise and serve manufacturing plants, public institutions, homes, garages, trucks, autos, etc., immediately. Write us today regarding Fyr-Fyter equipment for your own protection.

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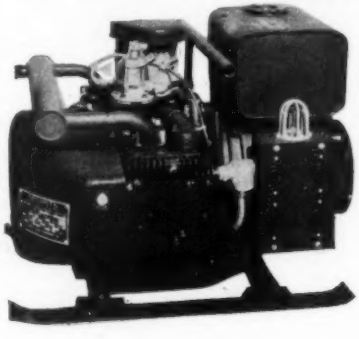

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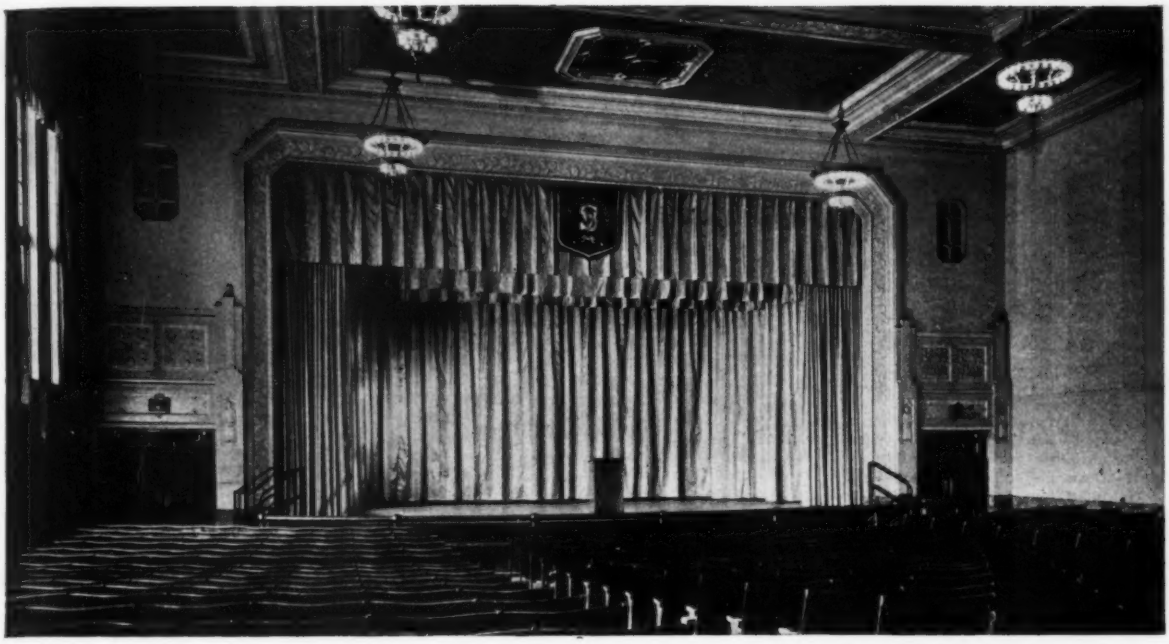

Non-combustible stage and window curtains in the auditorium of Von Steuben High School, Chicago... Under the supervision of the Board of Education... These colorful draperies and those installed in the cities listed below were supplied by Thortel Fireproof Fabrics, New York

These fabrics can't burn . . . *they're GLASS!*

● Tragic fires have resulted in places of public assembly because draperies and decorative hangings could, and did, burn. Now such fires need not happen, because *noncombustible fabrics*, woven from Fiberglas yarns, are available for schools, night clubs, hotels and assembly halls.

Fabrics of Fiberglas have these advantages:

- Offer *permanent noncombustibility.*
- *Eliminate* the necessity for the periodic check-up which is demanded for organic fabrics, even though they may be chemically treated.
- *Minimize the hazard of suffocation from oxygen depletion* in the event of fire in enclosed places.

Many fire officials have contributed to the safety of life and property in their communities by recommending all-glass fabrics for places of public assembly.

For complete information and for the name of the nearest source of supply for your city, advise your school board, hotel manager, restaurant and theatre owner to communicate with Owens-Corning Fiberglas Corporation, Nicholas Building, Toledo 1, Ohio.

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FIBERGLAS
TM REG US PAT OFF

. . . ALSO FIRESAFE INSULATIONS FOR BUILDINGS

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Hotels Piedmont and Winecoff
BALTIMORE
Club Charles
BILOXI, MISS.
Hotels Buena Vista and The White House
BOSTON
Hotel Fenagate
R. H. Stearns Co.
BUFFALO
Buffalo Savings Bank
Chez Ami Night Club
CARIBOU, ME.
Powers Theatre
CHATTANOOGA
Reed House
CHICAGO
Von Steuben High School (shown above); Roosevelt High School and 50 other public schools.
Hotels Congress (Glass Hat), Stevens and Continental.
Night Clubs—Latin Quarter and Chez Paris
DALLAS
Hotels Baker and Adolphus
ELLENVILLE, N. Y.
Nevele Country Club
HOT SPRINGS, ARK.
Hotels Arlington and Majestic
HOUSTON
Hotel Houston
JOHNSTOWN, PA.
Palace Theatre
LITTLE ROCK, ARK.
Albert Pike Hotel
LOS ANGELES
Ambassador Hotel
MANHASSET, L. I.
Lord & Taylor
MELROSE, MASS.
Melrose Trust Co.
MEMPHIS
Hotels Peabody and King Cotton
MIAMI BEACH
Rendezvous Night Club
MOBILE
Pan American Restaurant
MONROE, LA.
Hotel Frances
NASHVILLE
James Robertson Hotel
NEW ORLEANS
Public School No. 66
Hotels Jung, Monteleone and Roosevelt
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Stuyvesant High School and other public schools throughout the city.
Hotels Waldorf-Astoria (Starlight Roof), New Yorker (Terrace Room), Pierre, Gotham, Barbizon-Plaza, Roosevelt, Victoria.
Restaurants and Night Clubs—Iceland, Bal Tabarin, Louis XIV (Radio City), Tavern-on-the-Green.
LaGuardia Airport,
Black, Starr & Gorham.
Theatres Roxy and Centre.
OAKLAND
108 Club and Lamerios
PROVIDENCE
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No water can leak through to damage merchandise covered with Shuredry. Light, flexible, easy-to-handle Shuredry Salvage Covers with the exclusive Fulton dry treatment are pliant and soft in the coldest weather—Fold them for storage—they will not crack or sweat.

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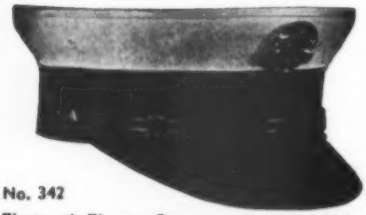
Union Made **Prompt Delivery**



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Wentworth Fireman Caps are made of the Highest Quality Standard Materials available and by the Best Skilled Union Craftsmen in all the New and Standard styles. Our 50 years of experience and skilled workmen guarantee you AMERICA'S GREATEST CAP VALUE in all WENTWORTH FIREMAN CAPS.

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Fireman Cap Specialists for Over 50 Years

The following is in answer to a previous question on fire department insignia:

Franklyn P. Kellogg, 1560 S.C.U., M.P. Sec., Camp Atterbury, Ind.: It is my opinion that the trumpet should be used as the identifying insignia of rank with a color background to designate type of service, such as truck companies, etc. A small space on the hat badge should bear the rank of the man.

Here is a suggestion for designating the rank of first class fireman: Engineers (operators)—old steamer; chauffeur—steering wheel; rescue squad—red cross with words "rescue squad" imprinted on the top; truckmen—a ladder or crossed axes; pipemen—a play pipe.

These insignia are optional and are, or should be, if used, worn above the coat badge.

I would like to see the military ensignia abolished as it has no place outside the armed forces. Most of us don't care too much about seeing any such stuff when we we return to civilian life.

Convention Dates

July 18-20 — CENTRAL NEW YORK FIREMEN'S ASSOCIATION. Annual meeting, Auburn, N. Y. President, Archie Spencer, Sidney, N. Y.

July 22-25—West Virginia State Fire School. Annual meeting, West Virginia University, Morgantown, W. Va. For information, address Fire Service Extension School, Mineral Industries Building, Morgantown, W. Va.

July 23-24—WESTERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Freedonia, N. Y. Secretary, James H. Surridge, Industry, N. Y.

July 23-25—KENTUCKY FIREMEN'S ASSOCIATION. Annual meeting, Paducah, Ky. Secretary, Captain V. A. Beam, 3504 Garland Avenue, Louisville 11, Ky.

July 23-26—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS and GREAT LAKES ASSOCIATION OF FIRE CHIEFS. Annual meeting, Cleveland, Ohio. Secretary, Chief Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Aug. 5-9 — PENNSYLVANIA FIRE SCHOOL. Annual meeting, Lewiston, Pa. Director, Edgar A. Spotz, Adviser, Fire Service Training, Public Service Institute, Harrisburg, Pa.

Aug. 6-8 — INDIANA FIREMEN'S ASSOCIATION Annual meeting, Fort Wayne, Ind. Secretary, Dee L. Corbin, Fire Headquarters, Bedford, Ind.

Aug. 10-11. OHIO STATE FIREMEN'S ASSOCIATION. Annual meeting, Dayton, Ohio. Secretary-Treasurer, Merle W. Gifford, 5105 Market Street, Youngstown, Ohio.

Aug. 12-14 — WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. Annual meeting, Neenah, Wis. Secretary, Arthur J. Rahn, Chief of Fire Department, Two Rivers, Wis.

Aug. 20-23—NEW YORK STATE VOLUNTEER FIREMEN'S ASSOCIATION. 74th Annual Convention and Tournament, Riverhead, L. I., N. Y.

Aug. 27-30 — DOMINION ASSOCIATION OF FIRE CHIEFS. Annual meeting, Timmins, Ont. Secretary, Chief Allan H. Clark, Lakefield, Ont.

Sept. 3-6—MARYLAND SHORT COURSE. Annual meeting. University of Maryland, College Park, Md. Director, Chief J. W. Just, Fire Service Extension, College of Engineering, University of Maryland.

Sept. 9-13 — INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS. Annual meeting, Toledo, Ohio. Secretary-Treasurer, George J. Richardson, A. F. of L. Building, Washington, D. C.

Oct. 14-16—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Omaha, Neb. Secretary, Russell D. Salak, P. O. Box 312, Schuyler, Neb.

Oct. 15-17—ILLINOIS FIREMEN'S ASSOCIATION. Annual meeting, Quincy, Ill. Secretary, Chief Roy Alsip, Fire Headquarters, Champaign, Ill.

Nov. 11-14. — INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Miami, Fla. Secretary, Irvin Shulsinger, 8 East 41st Street, New York 17, N. Y.

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BUNKER SUITS
FOR COMFORT & PROTECTION

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Any fireman can have a catalog by writing—

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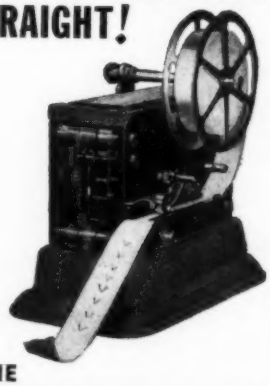
ST. JOSEPH **MISSOURI**

KEEP THE RECORDS STRAIGHT!



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FIRE ALARM—
PUNCHED TAPE REGISTER

WILL DO JUST THIS. In Central Fire Alarm Stations, Outlining Fire Stations, Police Department Offices, Water Works, etc. It Automatically Makes Records of Fire Alarms or Other Emergency Signals as Transmitted over such circuits.

Write for descriptive circular now.

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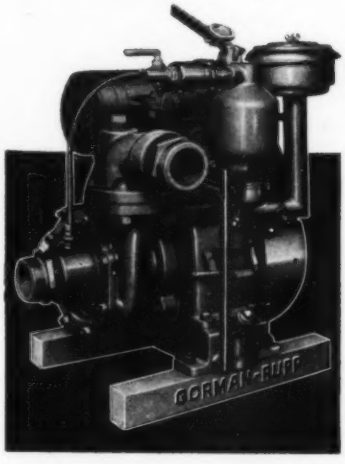
Team Mates.. FOR FIRE FIGHTING



Dual Fire Fighter

The little Gorman-Rupp "Dual Fire Fighter" pump is a valuable addition to any fire fighting equipment. At times when truck pumper cannot get to available water supply because of houses, trees, poles or fences the little "Dual Fire Fighter" can be easily carried by two men to the nearest lake, pond or stream. It weighs only 155 pounds. In from 15 to 30 seconds it is in action, being primed by an ingenious exhaust primer. It will deliver 175 gallons of water over a hill 30 to 50 feet high through 300 feet or more of 2½ inch fire hose. This will supply four ⅜ inch nozzles each delivering about 40 gallons at 90 pounds.

The "Dual Fire Fighter" can also be used to fight fires direct when the truck pumper is not available or is impracticable. Used in this manner it can supply two 1½ inch lines attached by a "Y" to a 2½ inch fire hose and will throw 100 gallons at 70 pounds or 80 gallons at 80 pounds.

This pump is also ideal for dewatering basements. Parts affected by abrasive materials and muddy water are easily and cheaply replaced. A few hours of pumping dirty water with an expensive truck pumper may cause costly damage and delay while undergoing necessary repair. Let the "Dual Fire Fighter" take the rap.

At its low price you just cannot afford to be without a "Dual Fire Fighter" pump.

Complete information in our Bulletin FD-3.
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THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

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JANESVILLE QUALITY TURN OUT CLOTHING

Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY

NOW AVAILABLE

We can now supply old type ¾ Length and Knee Length Felt-lined Firemen's Boots.

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JANESVILLE, WIS.

Chief - - - COULD YOU PUT OUT A CHIMNEY FIRE FOR 55¢?

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To put out chimney fires—merely throw a 55¢ package of "IMP" "as is" on the hottest part of the fire in the furnace, stove or fireplace. With all dampers open, the fire will be out in jig time—no ladders — no icy or slippery roofs—no water damage. Supply "IMP" to your community—save rushing to fires under dangerous winter conditions. Wise chiefs always carry "IMP" in their cars for any emergency. Many volunteers carry it in their personal cars. Order by coupon below.

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Write today Morning Pride Mfg. Co., 1986 Home Ave., Dayton 7, Ohio.

CHIMNEY POWDER

No need to send men on the roof for chimney fires. Has-Mor Soot Destroyer not only puts the fire out, it continues to work until it cleans the chimney, making it unnecessary to go back to another chimney fire. Put up in handy packages. Agents wanted. Harry S. Morgan, 52 Broad St., Johnson City, N. Y.

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FOR SALE

At tremendous savings. Practically new, nozzles, Y-gates, adapters, asbestos suits, boots, axes, etc., all equipment manufactured for U. S. Govt. Send me list of your needs, or write for sample lists. Irwin Heim, 146-09 14th Ave., Whitestone, N. Y. FLushing 3-4081.

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By well known manufacturer of Fire Apparatus and Equipment, for North Carolina, Georgia, Alabama, Florida, and Eastern Tennessee. Write Box 15, c/o FIRE ENGINEERING, 24 West 40th St., New York 18, N. Y.

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To sell popular make of Fire Apparatus in the State of Indiana and Central Kentucky. Write Box 20, c/o FIRE ENGINEERING, 24 West 40th St., New York 18, N. Y.

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Dodge Truck 1936 with 500-gallon centrifugal pump and 200-gallon booster tank. For further information write Abington Fire Co., Abington, Penna.

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FOR SALE

750 G.P.M. Ahrens Fox pumper with booster tank —Model K-4 delivered in 1918. Motor recently overhauled. Communicate with Bryn Mawr Fire Co., 901 Lancaster Ave., Bryn Mawr, Penn.

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"FLINT-FLEX" HELMETS

Another CAIRNS advance along safety lines—a plastic helmet combining the utmost in strength, protection and comfort, with the minimum of weight; one-piece construction with embossed reinforcing ribs; insulates against heat and electricity; highly resistant to crushing or fracture; moderate in price; PROMPT DELIVERIES. Write for Catalog 310.

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FOR PROGRESSIVE FIRE FIGHTERS

A 254 page book, 185 illustrations, cloth bound, by Fred Shepperd, Editorial Director of FIRE ENGINEERING.

Brings thoroughly up-to-date the subject of hydraulics as it pertains to every phase of fire-fighting — in simpler, more understandable and more complete form than ever. Not only that, it embraces, as well, many important new angles that have never before been covered anywhere. There are several brand new formulas, originated by Mr. Shepperd, and even old ones have been simplified or revised for greater accuracy.

"Fire Service Hydraulics" is a book every progressive fire fighter from the Chief down needs and should have.

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Mobile Receivers • Station Receivers • Frequency Monitors
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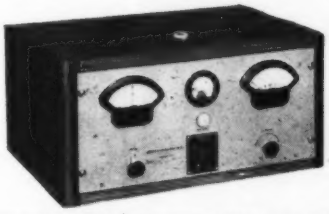

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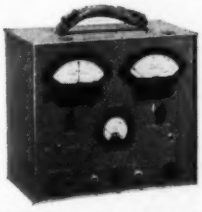
Direct reading. No charts or complicated calculations necessary. Available for all the frequencies used by the Emergency Services, including the new 152-162 mc. band. Designed for operation on 110 V. AC 60 cycles.

Also available for the New 88-108 mc. FM Broadcast Band.



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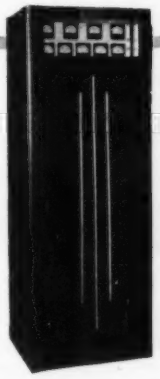
Models up to 60 watts output. Crystal controlled. Complete with Transmitter, Receiver, Power Supply and all Accessories.



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Emergency services function with increased speed and effectiveness through FM and AM equipment *completely engineered, built* and *matched by* DOOLITTLE. Individual units or complete systems . . . standard or special equipment . . . high or low power . . . in MF, HF or VHF . . . for old and new bands.

Outstanding features of DOOLITTLE equipment include: Noise operated squelch. Low power consumption. Maximum coverage. Latest electrical and mechanical design. Compact, easy to install. Very accessible, simple to service. Aluminum construction throughout. Highest quality components.

Equipment engineered and built by DOOLITTLE years ago still serves efficiently today.

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Builders of Precision Radio Communication Equipment for Police, Fire, Government, Forestry, Railroad, Public Utility and other emergency services.

"Uniform Excellence in Uniforms for Every Purpose"

Write for further data

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Civic pride, the cooperation of every citizen, is a vital asset to fire departments seeking to achieve high standards in fire protection.

Fire protection officials in leading cities, recognizing the important contribution of high quality uniforms to this attitude—and wanting the "extra" of higher departmental morale, specify better uniforms by . . .

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UNIFORM MANUFACTURERS
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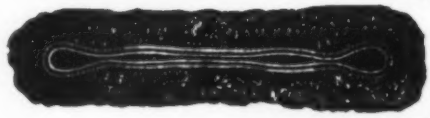
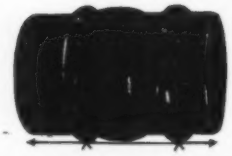
DOUBLE SERVICE
with
BI-LATERAL

This is the most pliable hose on the market. BI-LATERAL improved construction will give twice the service over hose made the old way. The BI-LATERAL construction makes it possible to carry 25% more hose on an apparatus — BI-LATERAL hose flattens without injury to rubber lining. BI-LATERAL comes equipped with improved ROCKER RING forged couplings.



Here's the new DROP - FORGED rocker lug coupling (not cast bronze) with the swivel protecting feature.



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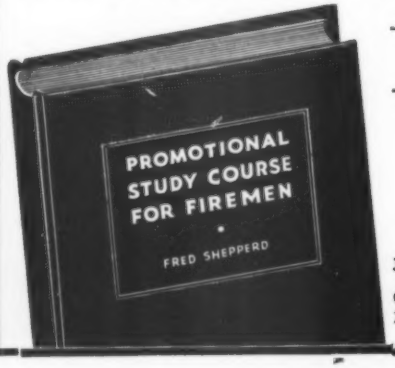
HOWE Fire Truck Equipment to Meet Every Service
Established 1872
HOWE FIRE APPARATUS COMPANY, 1402 West 22nd Street, Anderson, Indiana

A BIBLE of INSTRUCTION



—For the fire chief who wants to train his men—

—For the ambitious fire fighter studying for advancement—

PROMOTIONAL
STUDY COURSE
FOR FIREMEN

By Fred Shepperd, B.Sc., M.E.

350 Pages—Cloth Bound—$3.00 postpaid

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Engineer—M.E.—Fire Protection—20 years' experience design, specifications, tests, water supply, sprinklers, inspections, reports, losses, fire department organization and training. Able to take complete charge of comprehensive program as chief engineer or chief inspector. Write Box 25, c/o FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Questions and Answers

(*Continued from page* 538)

the importance of enforcing NO SMOKING regulations, or the use of methods in any plant in which manufacturing operations include the use of highly flammable liquids.

(6) Strict regulations, likewise, should govern the use of torches or any equipment that might give off sparks or flame in connection with the making of repairs. Logically, such work should not be done as long as combustible oils or other products are nearby and if an emergency makes it necessary to operate such equipment near stocks or storages of oils or other flammables, extreme precautions should be taken to use fireproof coverings and have proper extinguishing agents and trained personnel at hand at all times.

(7) Also little need be said about the importance of safe electrical installations. Gas proof light bulbs may be had for booths or rooms in which there may be accumulations of vapors. Any motors used, too, in such areas, should be of the protected type. All other details of electrical installations should be in accordance with the recommendations of the National Board of Fire Underwriters.

We believe these recommendations, although far from complete, will suggest other measures that you might take to safeguard your potato chip industry against fire. One trouble with the industry has been that in a majority of cases the plants themselves have not been built solely for the production of such a product, and with any thought of safety from fire. They are, in many cases, converted factories or industrial structures built of combustible materials and it is difficult to install up-to-the-minute safety measures on any economical basis.

One thing we did not mention in the foregoing is the importance of installing either an automatic or manual fire alarm system so that the local fire department can be summoned without delay. We would also suggest that local fire department officials be consulted to secure their opinions on safety measures and enable them to familiarize themselves with the plant layout, manufacturing processes, hazards and the like.

New York Will Add 500 Men

Fire Commissioner Frank J. Quayle has announced that $1,250,000 has been asked of the budget director to permit the fire department to appoint 500 new firemen on or immediately after July 1. The request is in line with Mayor O'Dwyer's announced policy to return members of the department to the three-platoon system which was cancelled during the war.

FLAMEFOIL CANVAS

RESISTS FIRE!

Will not burst into flame

FLAMEFOIL canvas is treated by a special process that gives the fabric remarkable resistance to fire. A spark or lighted cigarette butt might eat a small hole through an awning or a protective cover made of FLAMEFOIL canvas—but that's all! The surrounding canvas will not—CANNOT—burn.

TRY THIS. Take a piece of FLAMEFOIL canvas and try to set it afire. But that's all you will do—try—because FLAMEFOIL canvas simply can't burst into flame.

THE PROTECTION LASTS, too. FLAMEFOIL'S protective properties won't wash out, even with repeated wettings. Prove it yourself. Soak a piece of FLAMEFOIL thoroughly in water, let it dry and then try to make it blaze. You'll soon be convinced that "it just can't be done."

Resists RAIN, WEATHER, MILDEW, too.

In addition to its fire-resistant properties, the FLAMEFOIL finish is also waterproof and weather-proof—rain will not leak through, and sun will not lessen its protective qualities. The FLAMEFOIL finish also guards against the formation of mildew spots when canvas is stored.

To be sure of canvas that PROTECTS AS WELL AS COVERS—always specify

FLAMEFOIL

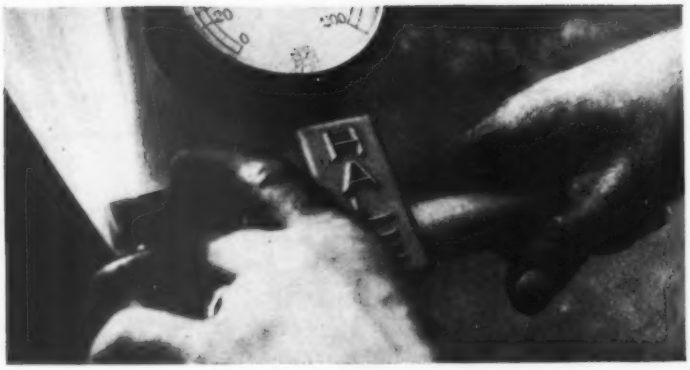
A PRODUCT OF

PHILADELPHIA TEXTILE FINISHERS, INC.

Ford and Lafayette Streets, Norristown, Pa.

Sales Agents: Wm. L. Barrell Co., 40 Worth St., New York 13, N. Y.

LOOK FOR THIS SEAL FLAMEFOIL **OF IDENTIFICATION**



For VOLUME and PRESSURE

Specify HALE

It's what comes out at the nozzle that counts.

Firefighters who have used Hale Fire Pumps have learned through first-hand experience to appreciate their flexible range of performance and high efficiency.

They know they can depend on HALE for the right volume and the right pressure to fit a wide range of tough fire-fighting conditions.

Make sure of this same flexibility and dependability in your next piece of apparatus by insisting on a Hale Fire Pump.

Write today for up-to-date information on Hale Fire Pumps . . . built in all Standard Capacities.

Below—Hale Type ZL Multi-Service Centrifugal Pump

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

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Bean Mfg. Co., John, Division Food Machinery Corp.	479
Bi-Lateral Fire Hose Co.	592
Body Guard Mfg. Co.	588
Boston Woven Hose & Rubber Co.	465
Braxmar Co., C. G.	586
Buckeye Iron & Brass Works	564
Buffalo Fire Appliance Corp.	453
C-O Two Fire Equipment Co.	478
Cairns & Bro.	590
Cardox Corp.	579
Carpenter Mfg. Co.	553
Central Fire Truck Corp.	582
Circul-Air Corp.	578
Darley & Co., W. S.	572
Dayton Fire Equipment Co.	576
Derbyshire Machine & Tool Co.	571
Doolittle Radio, Inc.	591
Duo Safety Ladder Corp.	491
E & J Mfg. Co.	488
Eastman Co., Inc., Samuel	583
Elkhart Brass Mfg. Co.	561
Emerson Co., J. H.	Inside Front Cover
Eureka Fire Hose Div., U. S. Rubber Co.	472
Excelsior Brass Mfg. Co.	580
Federal Electric Co., Inc.	451
Foard & Co., F. C.	590
Four Wheel Drive Auto Co.	Inside Back Cover
Fulton Bag & Cotton Mills	588
Fyr-Fyter Co.	586
Gamewell Company	492
General Detroit Corp.	547
General Electric Co.	585
General Fire Truck Co.	457
Goodall Rubber Co.	548
Gorman-Rupp Co.	589
Guided Radio Corp.	555
Hahn Motors, Inc.	483
Hale Fire Pump Co., Inc.	594
Harrington Signal Co.	588
Homelite Corp.	563
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International Industries, Inc.	560
Janesville Apparel Co.	590
Kaar Engineering Co.	567
Kellam Mfg. Co.	576
Koehler Mfg. Co.	574
M & H Valve & Pittings Co.	570
McIntire Brass Works	581
Mack Mfg. Corp.	454-455
Manhattan Rubber Division	461
Mars Signal Light Co.	559
Maxim Motor Co.	577
Midwestern Mfg. Co.	482
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Morrissey Mfg. Co.	558
National Foam System, Inc.	468
O'Leary's Fire Prevention Co.	557
Onan & Sons, D. W.	562
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Owens-Corning Fiberglas Corp.	587
Paradise Mfg. Co.	584
Philadelphia Textile Finishers, Inc.	593
Pirsch & Sons Co., Peter	476
Porter, Inc., H. K.	582
Powhatan Brass & Iron Works	485
Pyrene Mfg. Co.	550
Quaker Rubber Corp.	487
Randolph Laboratories, Inc.	568
Raybestos-Manhattan, Inc., Manhattan Rubber Div.	461
Red Head Brand Co.	566
Republic Rubber Div., Lee Rubber & Tire Corp.	565
Rockwood Sprinkler Co.	464
Ross Valve Mfg. Co.	580
Schutte & Koerting Co.	490
Scott Aviation Corp.	551
Seagrave Corp.	474-475
Security Fire Equipment Co.	586
Sleeper Co., George E.	460
Smith & Co., D. B.	552
Southern Switch & Signal Co.	486
Sterling Siren Fire Alarm Co., Inc.	568
Superior Fire Equipment Corp.	554
U. S. Motor Corp.	569
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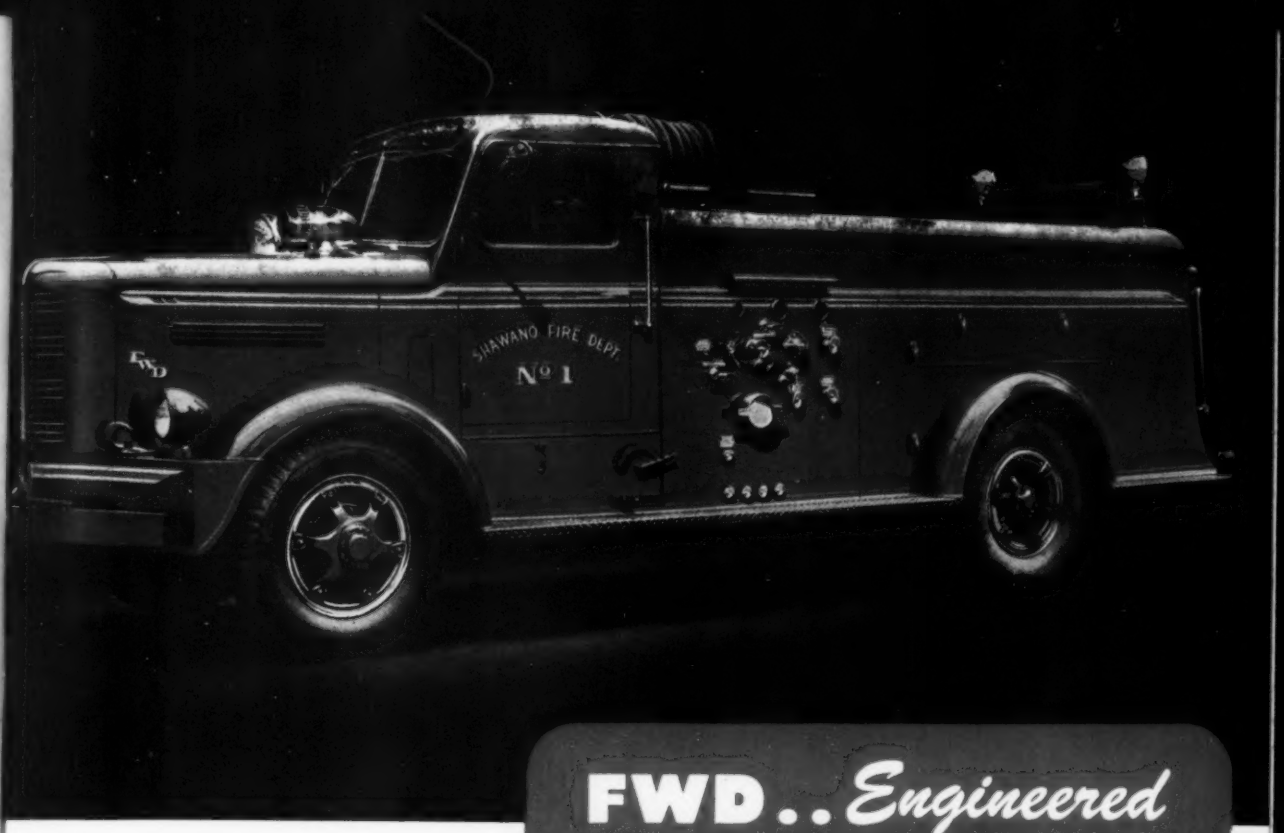
Ward-LaFrance Truck Div., Great American Ind., Inc.	458-459
Waterous Company	473
Weintraub Brothers	592
Welders Service Co., Inc.	484
Wentworth-Forman Co., Inc.	588
Wooster Brass Co.	556



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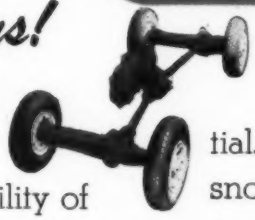
FOUR-WHEEL-DRIVE

A "Plus" that Pays in Many Ways!



The unfailing dependability of FWD Fire apparatus is well known and valued by fire fighters. Superior speed, power, traction and safety are FWD-engineered advantages resulting from the true FWD four-wheel drive principle at its highest development, with center differential. Steep or slippery grades, mud or snow-blocked roads, are no handicaps for FWDs. Driving power and traction in all wheels is the answer . . . and the reason why cities from coast to coast value the "plus" performance of FWD Fire Apparatus.

THE FOUR WHEEL DRIVE AUTO CO.
Clintonville, Wisconsin
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For 36 years, owners have said: "FWD — the BEST truck built!"

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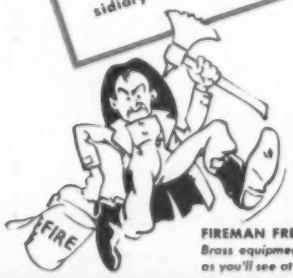
FOUR-WHEEL-DRIVE *Fire Apparatus* GETS TO FIRES FASTER AND SAFER!

Now! AKRON BRASS Offers You Both

AKRON BRASS ACQUIRES FOGNOZL

The physical assets and patents of Fog Nozzle Company have been purchased by Akron Brass. Fognozl products will be manufactured and sold by Fog Nozzle International, Inc., a subsidiary of Akron Brass Mfg. Company.



FIREMAN FREDDIE SAYS: *Akron Brass equipment just can't be beat, as you'll see at the I. A. F. C. Meet.*

COMPLETELY COVERING MUNICIPAL AND INDUSTRIAL FIELDS

With FOGNOZL and AKR-O-MIST the Akron Brass Line meets every major need for equipment for fighting fire with fog developed from water.

FOGNOZL operates on the scientific principle of developing a homogeneous mass of fog through the controlled uniformity of water particles formed by multiple jet impingement of small streams. Among important FOGNOZL features are:

- Highly efficient straight stream.
- Adjustable tip for varying quantity of fog.
- Water particles always uniform regardless of water volume.

AKR-O-MIST principle is that of producing water fog by impingement and baffle of a solid stream.

AKR-O-MIST's double concentric cone produces vapor of great density. The inner cone rapidly generates steam which is retained by the outer mist cone, resulting in quick extinguishment of fire.

We welcome your inquiries regarding FOGNOZL and AKR-O-MIST.

AKRON BRASS MFG. COMPANY, Inc. • WOOSTER, OHIO

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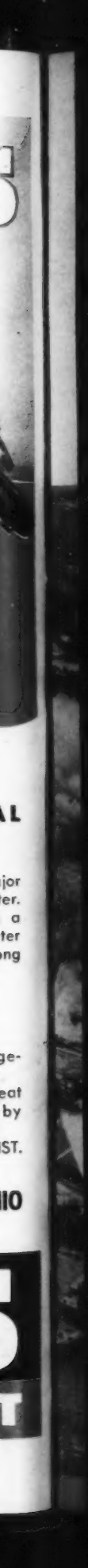
FIRE FIGHTING EQUIPMENT